Investment Performance Review Period Ending September 30, 2021

# Retirement Board of Allegheny County



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**3rd Quarter 2021 Market Environment** 



#### The Economy

- Growth in the US likely slowed during the 3<sup>rd</sup> quarter as the recovery continues to mature.
- Inflation remains well above the Federal Reserve Bank's (the Fed) average target of 2.0%. The annual rate of inflation dropped slightly to 5.3% in August, down from 5.4% in July.
- The demand for labor in the US remains strong as evidenced by the drop in the unemployment rate in September to 4.8%, down from 5.2% in August. Unemployment benefits granted under the March 2020 CARES Act expired in early September. Wage growth remains strong as employers remain challenged to fill job openings.
- Despite leaving interest rates unchanged at their most recent meeting, the Fed stated that it would begin tapering its asset purchases and being the process of evaluating when interest rates would start to rise.

#### Equity (Domestic and International)

- Volatility increased in during the 3<sup>rd</sup> quarter as US markets climbed to new all-time highs in early September only to pull back towards the end of the period. A variety of factors contributed to the increase in volatility including concerns related to the Delta variant, supply chain shortages, higher US interest rates, rising inflation, and fiscal policies in Washington. Despite these concerns, growth led value in both large and mid-cap companies and large companies outperformed relative to smaller peers.
- Developed international equity markets outperformed their domestic counterparts during the 3<sup>rd</sup> quarter. Emerging markets dropped sharply on concerns related to increased regulatory oversight in China and the potential default of Evergrande, the largest Chinese property developer.

#### **Fixed Income**

- Despite the continued concerns related to rising inflation and potential changes in Fed policies, US interest rates were essentially unchanged during the quarter. The US 10-Year Treasury bond rose only 2 basis points (0.02%) for the quarter to close at a yield of 1.48%.
- Performance across most US bond market sectors was muted during the quarter and was driven largely by the Fed's messaging concerning the potential for beginning the process of raising interest rates in late-2022.
- Lower quality corporate bonds outperformed higher quality sectors during the quarter. The combination of larger relative coupons and shorter maturity profiles acted as tailwinds for lower quality during the period.

#### **Market Themes**

- While global central bank monetary policy remains accommodative, both the Fed and the Bank of England hinted that rate increases would most likely be warranted in the near future. Historically, rising interest rates have served as a headwind to equity markets, particularly for expansion-oriented growth companies.
- The combination of supply chain disruptions and labor shortages is creating increased pressure on corporate margins. While earnings were generally better than expected during the period, the longer these challenges persist, the higher the likelihood that earnings will be negatively affected moving forward.
- Measures of inflation in both the US and Europe remain well above their respective targets. Persistent increases in food and energy prices have the potential to act as a headwind to consumers in coming periods as wages have not kept pace with rising prices.



0.6%

-0.1%

- US equity markets experienced disparate returns during the 3rd quarter of 2021. The primary factors that drove the market performance during the period were concerns related to rising inflation and potential changes in the Fed's monetary policy. Despite rising US interest rates, growth-oriented companies maintained their market leadership relative to value. For the period, large cap companies returned 0.6%, compared to -0.9% for mid-caps and -4.4% for small company stocks.
- Similar to domestic markets, broad international equity markets also posted disappointing returns for the 3rd quarter. While concerns related to the spread of COVID began to wane, the key drivers of performance were rising inflation, rising interest rates, and the potential default of Evergrande in China. During the period, the MSCI EAFE Index posted a return of -0.4% while the MSCI Emerging Markets Index returned a weak -8.1%.
- For the quarter, bond market returns were muted as interest rates across the yield curve remained largely unchanged. While the Bloomberg (BB) US Aggregate Index returned 0.1%, the outlier was US TIPS which returned 1.8% on concerns about potential rising inflation.
- Returns over the trailing 1-year were strong across all broad US equity markets. The continuation of supportive monetary policy from the Fed and the reopening of local economies as the pandemic receded were the primary performance drivers during the period. Domestic small cap stocks posted highest return for the trailing 1-year period, returning 47.7%. US large cap performance was also stellar with a return of 30.0% over the trailing 1-year period.
- International markets also performed well but lagged relative to their domestic counterparts. Over the trailing 1-year period, the MSCI EAFE Index returned 25.7% while the MSCI Emerging Markets Index returned a lower 18.2%. The combination of rising inflation and developed market interest rates were the primary headwinds during the period.
- Bond market returns over the trailing 1-year period were muted with the Bloomberg US Aggregate Index returning -0.9%. US TIPS continued to lead the way as investors remain concerned about the potential for rising inflation. The TIPS Index returned 5.2% for the period while investment grade corporate bonds returned 1.7%.

Russell 1000 0.2% Russell MidCap -0.9% Russell 2000 -4.4% MSCI ACWxUS -3.0% -0.4% MSCI EAFE MSCI Emerg Mkts -8.1% Bloomberg US Agg 0.1% Bloomberg US Govt 0.1% Bloomberg US TIPS 1.8% Bloomberg MBS 0.1% Bloomberg Corp IG 0.0% 3-Month T-Bill 0.0% -10.0% -8.0% -6.0% -4.0% -2.0% 0.0% 2.0% 4.0% **1-Year Performance** S&P 500 30.0% Russell 3000 31.9% Russell 1000 31.0% Russell MidCap 38.1% Russell 2000 47 7% MSCI ACWxUS 23.9% MSCI EAFE 25.7% MSCI Emerg Mkts 18.2%

MSCI Emerg Mkts Bloomberg US Agg Bloomberg US Govt Bloomberg US TIPS Bloomberg MBS Bloomberg Corp IG 3-Month T-Bill 0.1%

0.0%

10.0%

20.0%

30.0%

40.0%

50.0%

-10.0%

88

60.0%

Source: Investment Metrics

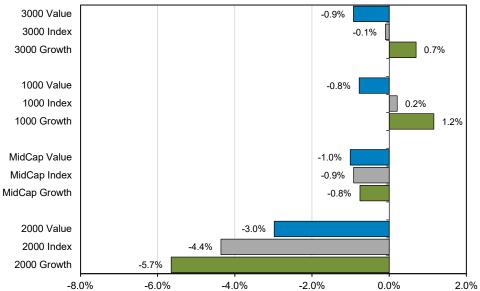
#### Quarter Performance

S&P 500

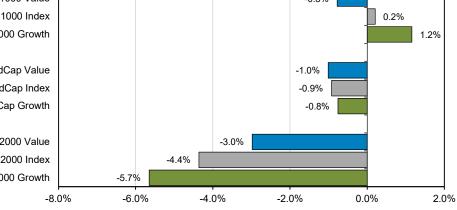
Russell 3000

- The market's upward momentum waned during the guarter as most US equity benchmarks posted their first losing guarter since the drawdown at the onset of the pandemic. Large cap stocks continued to lead the equity markets, followed by mid and small cap issues. The Russell 1000 Index returned 0.2% versus returns of -0.9% for the Russell Mid Cap Index and -4.4% for the Russell 2000 Index.
- Except for small cap benchmarks, Growth continued to outpace value for the second consecutive guarter. The Russell 1000 Growth Index was the best performing style index for the quarter, posting a return of 1.2% and Mid cap growth performance was negative, returning -0.8%. However, in small cap stocks, value outpaced growth for the second consecutive quarter with the Russell 2000 Value Index returning -3.0% versus a weaker -5.7% for the Russell 2000 Growth Index.

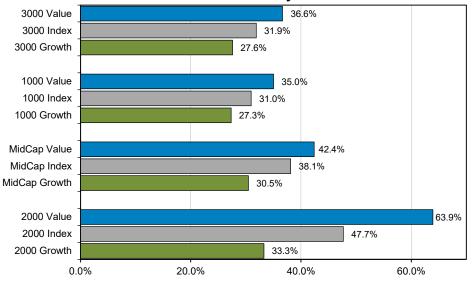
- Performance across all market capitalizations and styles was very strong over the trailing 1-year period led by higher beta small cap stocks.
- Despite the recent relative outperformance by growth, value stocks outperformed across all market capitalizations over the trailing 1-year period. As the strong economic recovery continued, small cap value stocks posted outsized performance with the Russell 2000 Value Index returning 63.9%. The dispersion between value and growth was also most pronounced for small cap benchmarks (30.6%).



**Quarter Performance - Russell Style Series** 



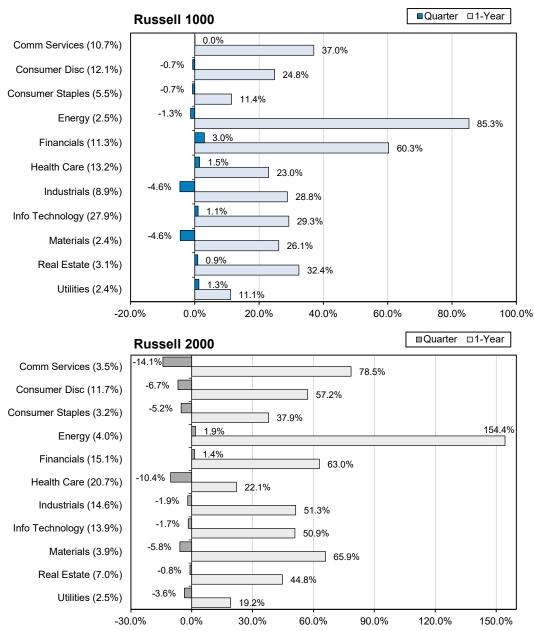
#### 1-Year Performance - Russell Style Series



Source: Investment Metrics



- Sector performance was mixed and muted during the 3rd quarter with only five of the eleven large cap economic sectors realizing positive returns. Five sectors outpaced the return of the broad index during the period.
- Financials were the best performing sector during the quarter returning 3.0%. Rising interest rates and a steepening yield curve should boost banks' profits in the coming quarters. Health Care also performed well, led by the companies developing treatments for COVID-19. The Industrials and Materials sectors were negative during the period, with both sectors returning -4.6%. Supply chain disruptions and concerns about shrinking corporate margins acted as headwinds for performance in these sectors. and concerns about shrinking corporate margins acted as headwinds.
- For the full year, all eleven sectors produced positive returns. Sector performance for the period was led by Energy which jumped 85.3% as oil prices recovered from their pandemic lows. Four of the eleven sectors outperformed the broad large cap benchmark: Energy (85.3%), Financials (60.3%), Communication Services (37.0%), and Real Estate (32.4%). Although they still produced double-digit returns, the weakest economic sectors in the Russell 1000 for the trailing year were Utilities (11.1%) and Consumer Staples (11.4%).
- Small cap sector performance had a more challenging quarter with only two of the eleven small cap sectors posted positive performance. Energy (1.9%) and Financials (1.4%) benefited from rising energy prices and higher interest rates. Six of the Russell 2000 Index sectors managed to outpace the core benchmark for the quarter. Dispersion between the benchmark's sectors was wide during the period with Energy (1.9%) and Communication Services (-14.1%) defining the broad 16.0% band.
- For full 1-year period, seven of the eleven sectors outperformed the broad benchmark: Energy (154.4%), Communication Services (78.5%), Materials (65.9%), Financials (63.0%), Consumer Discretionary (57.2%), Industrials (51.3%), and Info Technology (50.9%). The combination of continued economic growth, accommodative monetary policies, rising energy prices, and increased inflationary pressures were the primary catalysts for the exceptional trailing 1-year performance.





Source: Morningstar Direct

As a result of the GICS classification changes on 9/28/2018 and certain associated reporting limitations, sector performance represents backward looking performance for the prior year of each sector's current constituency, post creation of the Communication Services sector.

The Market Environment

Top 10 Index Weights & Quarterly Performance for the Russell 1000 & 2000

As of September 30, 2021

Top 10 Weighted Stocks									
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector					
Apple Inc	5.40%	3.5%	23.0%	Information Technology					
Microsoft Corp	5.17%	4.3%	35.3%	Information Technology					
Amazon.com Inc	3.47%	-4.5%	4.3%	Consumer Discretionary					
Facebook Inc Class A	1.98%	-2.4%	29.6%	Communication Services					
Alphabet Inc Class A	1.96%	9.5%	82.4%	Communication Services					
Alphabet Inc Class C	1.82%	6.3%	81.4%	Communication Services					
Tesla Inc	1.50%	14.1%	80.8%	Consumer Discretionary					
Berkshire Hathaway Inc Class B	1.23%	-1.8%	28.2%	Financials					
NVIDIA Corp	1.21%	3.6%	53.3%	Information Technology					
JPMorgan Chase & Co	1.18%	5.8%	74.8%	Financials					

	Top 10 W	eighted Stoc	ks	
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
AMC Entmt Holdings Inc Class A	0.67%	-32.9%	708.1%	Communication Services
Intellia Therapeutics Inc	0.32%	-17.1%	574.8%	Health Care
Crocs Inc	0.30%	23.1%	235.8%	Consumer Discretionary
Lattice Semiconductor Corp	0.30%	15.1%	123.2%	Information Technology
Ovintiv Inc	0.29%	4.6%	310.2%	Energy
Tetra Tech Inc	0.27%	22.6%	57.3%	Industrials
Scientific Games Corp Ordinary Shares	0.27%	7.3%	138.0%	Consumer Discretionary
Rexnord Corp	0.27%	28.7%	117.1%	Industrials
Biohaven Pharm. Holding Co Ltd	0.26%	43.1%	113.7%	Health Care
Asana Inc Ordinary Shares - Class A	0.26%	67.4%	260.6%	Information Technology

Top 10 Performing Stocks (by Quarter)									
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector					
Upstart Holdings Inc Ordinary Shares	0.03%	153.4%	N/A	Financials					
Moderna Inc	0.32%	63.8%	444.0%	Health Care					
Albertsons Companies Inc Class A	0.01%	59.1%	129.8%	Consumer Staples					
Atlassian Corporation PLC A	0.13%	52.4%	115.3%	Information Technology					
Paylocity Holding Corp	0.03%	47.0%	73.7%	Information Technology					
Bill.com Holdings Inc Ordinary Shares	0.05%	45.7%	166.1%	Information Technology					
Repligen Corp	0.04%	44.8%	95.9%	Health Care					
Acceleron Pharma Inc	0.02%	37.1%	52.9%	Health Care					
Paycom Software Inc	0.06%	36.4%	59.3%	Information Technology					
Datadog Inc Class A	0.08%	35.8%	38.4%	Information Technology					

Тор	10 Performir	ng Stocks (by	y Quarter)	
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
State Auto Financial Corp	0.03%	198.2%	276.9%	Financials
Fulcrum Therapeutics Inc	0.03%	169.2%	255.7%	Health Care
IVERIC bio Inc	0.06%	157.4%	187.9%	Health Care
Kadmon Holdings Inc	0.05%	125.1%	122.2%	Health Care
GreenSky Inc Class A	0.03%	101.4%	151.8%	Information Technology
Dynavax Technologies Corp	0.07%	95.0%	344.7%	Health Care
Grid Dynamics Hldgs Inc Ord Shrs A	0.04%	94.4%	278.0%	Information Technology
Peabody Energy Corp	0.04%	86.5%	543.0%	Energy
Trillium Therapeutics Inc	0.06%	81.2%	24.2%	Health Care
Cytokinetics Inc	0.10%	80.6%	65.1%	Health Care

Bottom	10 Perform	ing Stocks (	by Quarter)		Bottom	10 Perform	ning Stocks (	by Quarter)	
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector	ctor Russell 2000 W		1-Qtr Return	1-Year Return	Sector
GoHealth Inc Ordinary Shares - Class A	0.00%	-55.1%	-61.4%	Financials	GT Biopharma Inc	0.00%	-100.0%	N/A	Health Care
Skillz Inc Ordinary Shares - Class A	0.01%	-54.8%	N/A	Communication Services	Forte Biosciences Inc Ordinary Shares	0.00%	-91.2%	-93.9%	Health Care
Boston Beer Co Inc Class A	0.01%	-50.1%	-42.3%	Consumer Staples	Eargo Inc Ordinary Shares	0.00%	-83.1%	N/A	Health Care
StoneCo Ltd Class A	0.02%	-48.2%	-34.4%	Information Technology	Sesen Bio Inc	0.01%	-82.8%	-43.3%	Health Care
TuSimple Hldgs Inc Ord Shrs - Class A	0.00%	-47.9%	N/A	Industrials	Ardelyx Inc	0.00%	-82.6%	-74.9%	Health Care
NovoCure Ltd	0.03%	-47.6%	4.4%	Health Care	MedAvail Holdings Inc Ordinary Shares	0.00%	-76.2%	N/A	Consumer Staples
Vroom Inc Ordinary Shares	0.01%	-47.3%	-57.4%	Consumer Discretionary	Seres Therapeutics Inc	0.02%	-70.8%	-75.4%	Health Care
Virgin Galactic Holdings Inc Shs A	0.01%	-45.0%	31.6%	Industrials	Ontrak Inc	0.00%	-69.1%	-83.3%	Health Care
ChargePoint Hldgs Inc Ord Shrs - A	0.01%	-42.5%	N/A	Industrials	InnovAge Holding Corp	0.00%	-69.0%	N/A	Health Care
Signify Health Inc Ord Shrs - Class A	0.00%	-41.3%	N/A	Health Care	Ashford Hospitality Trust Inc	0.01%	-67.7%	-10.8%	Real Estate

Source: Morningstar Direct

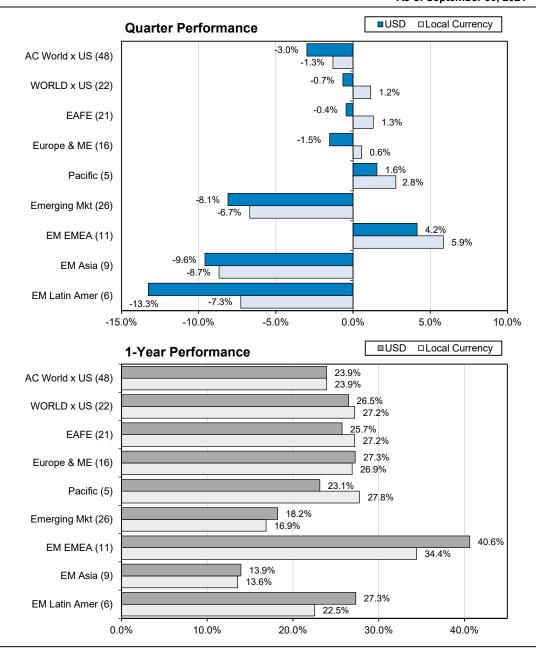


The Market Environment International and Regional Market Index Performance (Country Count) As of September 30, 2021

 Although some regional benchmarks posted positive performance for the quarter, the US dollar (USD) performance for the broad international equity benchmarks were negative. For the period, developed markets outperformed emerging markets in both USD and local currency. The MSCI EAFE Index returned -0.4% in USD and 1.3% in local currency terms for the period while the MSCI Emerging Markets Index posted a weak -8.1% return in USD and -6.7% in local currency terms.

 The trailing 1-year results for international developed and emerging markets were positive across all regions and currencies. The MSCI EAFE Index returned 25.7% in USD and 27.2% in local currency terms, while the MSCI Emerging Markets Index returned 18.2% in USD and 16.9% in local currency terms. Performance within the emerging markets regions was led by the EMEA region which returned 40.6% in USD and 34.4% in local terms.

Source: MSCI Global Index Monitor (Returns are Net)



83

The Market Environment US Dollar International Index Attribution & Country Detail

As of September 30, 2021

MSCI - EAFE	Sector Weight	Quarter Return	1-Year Return
Communication Services	4.8%	-4.1%	16.2%
Consumer Discretionary	12.7%	-3.6%	31.7%
Consumer Staples	10.2%	-3.4%	9.0%
Energy	3.5%	8.7%	62.1%
Financials	17.2%	1.8%	44.5%
Health Care	12.7%	0.5%	9.7%
Industrials	15.8%	1.3%	28.1%
Information Technology	9.6%	5.0%	36.2%
Materials	7.3%	-5.7%	25.2%
Real Estate	2.9%	-3.1%	20.2%
Utilities	3.3%	-4.6%	4.4%
Total	100.0%	-0.4%	25.7%

MSCI – ACWIxUS	Sector Weight	Quarter Return	1-Year Return
Communication Services	6.3%	-9.9%	9.0%
Consumer Discretionary	12.7%	-11.5%	9.9%
Consumer Staples	8.5%	-3.4%	10.0%
Energy	4.9%	6.7%	55.0%
Financials	19.3%	1.1%	42.5%
Health Care	9.5%	-1.9%	10.1%
Industrials	12.2%	0.2%	27.9%
Information Technology	13.2%	-1.0%	36.7%
Materials	8.0%	-5.5%	27.1%
Real Estate	2.5%	-5.7%	12.7%
Utilities	3.0%	-1.9%	10.5%
Total	100.0%	-3.0%	23.9%

MSCI - Emerging Mkt	Sector Weight	Quarter Return	1-Year Return
Communication Services	10.3%	-15.1%	1.9%
Consumer Discretionary	14.7%	-22.9%	-16.9%
Consumer Staples	5.9%	-4.4%	13.4%
Energy	5.9%	9.1%	44.5%
Financials	19.5%	1.0%	35.0%
Health Care	5.0%	-13.0%	12.9%
Industrials	4.9%	-6.5%	31.9%
Information Technology	20.9%	-5.9%	37.3%
Materials	8.7%	-4.8%	46.1%
Real Estate	2.1%	-14.2%	-9.4%
Utilities	2.3%	7.4%	35.2%
Total	100.0%	-8.1%	18.2%

	MSCI-EAFE	MSCI-ACWIxUS	Quarter	1- Year
Country	Weight	Weight	Return	Return
lapan	24.2%	15.3%	4.6%	22.1%
Jnited Kingdom	14.4%	9.1%	-0.3%	31.2%
France	11.2%	7.1%	-2.0%	34.3%
Switzerland	9.5%	6.0%	-3.3%	14.5%
Germany	9.1%	5.8%	-4.3%	16.5%
Australia	6.9%	4.4%	-3.0%	31.7%
Netherlands	4.8%	3.1%	3.4%	46.0%
Sweden	3.7%	2.3%	-2.2%	31.4%
Hong Kong	3.0%	1.9%	-9.4%	15.0%
Denmark	2.6%	1.7%	2.6%	28.3%
taly	2.5%	1.6%	-1.1%	33.4%
Spain	2.4%	1.5%	-3.3%	31.4%
Singapore	1.2%	0.7%	0.0%	30.0%
Finland	1.0%	0.7%	-3.1%	16.6%
Belgium	0.9%	0.6%	-5.6%	18.8%
reland	0.9%	0.5%	0.0%	21.8%
	0.7%	0.5%	5.2%	45.4%
Norway				
srael	0.6%	0.4%	2.8%	28.4%
New Zealand	0.2%	0.2%	1.8%	-2.3%
Austria	0.2%	0.1%	10.4%	98.2%
Portugal	0.2%	0.1%	3.6%	19.5%
Total EAFE Countries	100.0%	63.3%	-0.4%	25.7%
Canada		7.1%	-2.5%	33.9%
Total Developed Countries		70.4%	-0.7%	26.5%
China		10.1%	-18.2%	-7.3%
Faiwan		4.4%	-2.1%	43.3%
Korea		3.7%	-13.2%	27.8%
ndia		3.6%	12.6%	53.1%
Brazil		1.3%	-20.2%	21.0%
Russia		1.2%	9.5%	59.4%
Saudi Arabia		1.0%	8.2%	47.7%
South Africa		0.9%	-5.8%	27.2%
Mexico		0.6%	1.4%	51.1%
Thailand		0.5%	-3.6%	20.1%
ndonesia		0.4%	9.4%	26.4%
Malaysia		0.4%	0.2%	1.4%
Jnited Arab Emirates		0.2%	6.4%	50.6%
Poland		0.2%	1.2%	29.5%
Qatar		0.2%	7.3%	15.0%
Philippines		0.2%	-3.6%	13.3%
Kuwait		0.2%	9.0%	27.8%
Chile		0.1%	-7.8%	18.7%
lungary		0.1%	7.7%	72.8%
urkey		0.1%	1.9%	5.2%
Argentina		0.1%	22.1%	47.2%
Colombia		0.1%	10.2%	31.7%
Peru		0.1%	-11.0%	-5.8%
Greece		0.1%	2.0%	30.4%
Zzech Republic		0.0%	14.2%	85.2%
Egypt		0.0%	4.3%	-13.7%
Fotal Emerging Countries		29.5%	-8.1%	18.2%
Total ACWIxUS Countries		100.0%	-3.0%	23.9%

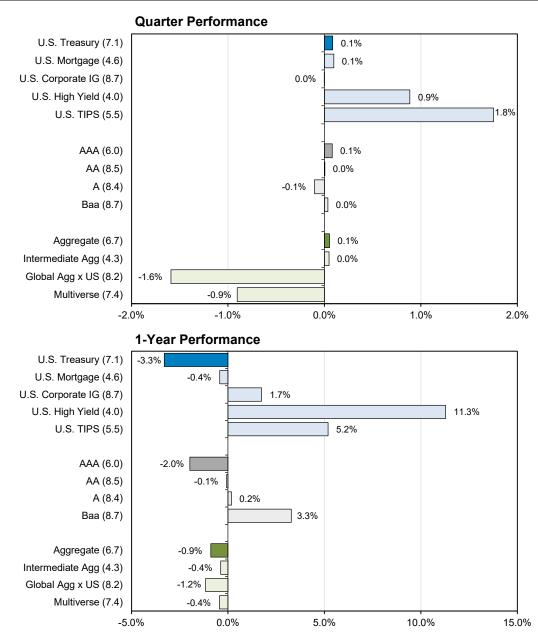
Source: Morningstar Direct, MSCI Global Index Monitor (Returns are Net in USD) As a result of the GICS classification changes on 9/28/2018 and certain associated reporting limitations, sector performance represents backward looking performance for the prior year of each sector's current constituency, post creation of the Communication Services sector.



The Market Environment Domestic Bond Sector & Broad/Global Bond Market Performance (Duration)

As of September 30, 2021

- Fixed income market yields were broadly unchanged during the 3rd quarter. The Bloomberg US Aggregate Bond Index returned a muted 0.1% for the period.
- Digging deeper into bond market sectors, while the US Corporate Investment Grade Index return was largely unchanged (0.0%), lower quality High Yield benchmark delivered positive a positive return of 0.9%. High yield issues benefited from the asset category's overall shorter maturity profile and higher coupon rate.
- The outlier during the quarter was US TIPS issues, which returned 1.8%. Expectations for inflation to persist above the Fed's stated average target of 2.0% was the catalyst for the solid performance.
- Outside of domestic markets, the Bloomberg Global Aggregate ex US Index posted a -1.6% return for the quarter. A significant contributor to the global bond's index performance was UK issues. Interest rates in the UK moved higher during the period as the Bank of England began to message the potential for rate increases in the near future.
- Over the trailing 1-year period, returns of higher quality government and mortgage-backed bonds were disappointing. US Treasury bonds declined by -3.3% and the mortgage-backed benchmark returned a less negative -0.4%.
- In contrast, corporate bonds delivered solid performance, led by lower quality high yield bonds. The Bloomberg US Corporate IG Index returned 1.7% while the Blomberg US High Yield Bond Index returned a strong 11.3%.
- US TIPS continued to perform well for the trailing 1-year period with the index returning 5.2%. Persistent concerns about rising inflation acted as a tailwind for TIPS issues.

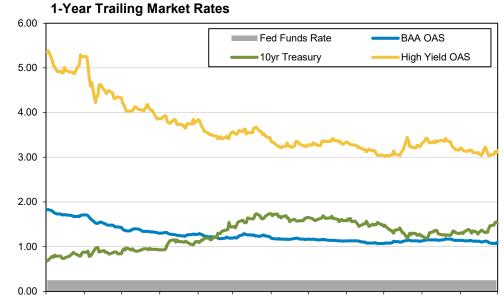


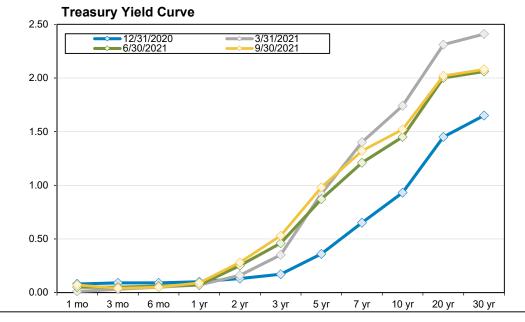
Source: Bloomberg



- The gray band across the graph represents the range of the Fed Funds Rate. Over the past year, the Fed's target rate range has remained unchanged at 0.00% to 0.25%. During its September meeting, the Federal Open Market Committee (FOMC) reiterated its commitment to keeping interest rates near zero while signaling that it would begin tapering its asset purchase program. Importantly, the Fed also indicated it would begin considering raising US interest rates in the near future.
- The yield on the US 10-year Treasury (green line) continued to rise during the year as the economy recovered. After reaching a high of 1.74% during the 1st guarter of 2021, interest rates have largely moved in a range-bound, sideways pattern.
- The blue line illustrates changes in the BAA OAS (Option Adjusted Spread). This measure quantifies the additional yield premium investors require to purchase and hold non-Treasury investment grade issues. As the pace of the economic recovery quickened, spreads narrowed, indicating that investors remain comfortable owning credit as the probability of corporate defaults remains low. While nearly triple the BAA OAS, the High Yield OAS shows a similar willingness by investors to hold non-Treasury debt.
- The lower graph provides a snapshot of the US Treasury yield curve at the end of each of the last four quarters. Beginning in the 4th quarter of 2020, longer-term interest rates began to move higher as investors anticipated improving economic conditions. Interest rates peaked in the 1st quarter as economic growth surprised to the upside. Since then, longer-term US interest rates have remained relatively steady.

Source: US Department of Treasury, FRED (Federal Reserve of St. Louis)





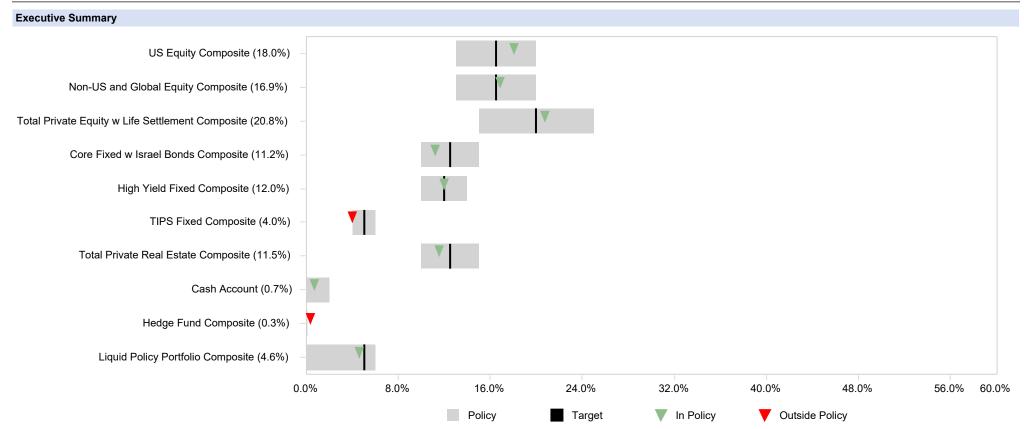
Page 10





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#### **Asset Allocation Compliance**

	Asset Allocation \$	Current Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)
Total Fund	1,061,549,183	100.0	N/A	N/A	100.0
US Equity Composite	191,381,978	18.0	13.0	20.0	16.5
Non-US and Global Equity Composite	179,122,457	16.9	13.0	20.0	16.5
Total Private Equity w Life Settlement Composite	220,323,918	20.8	15.0	25.0	20.0
Core Fixed w Israel Bonds Composite	119,178,215	11.2	10.0	15.0	12.5
High Yield Fixed Composite	127,406,673	12.0	10.0	14.0	12.0
TIPS Fixed Composite	41,960,670	4.0	4.0	6.0	5.0
Total Private Real Estate Composite	122,354,650	11.5	10.0	15.0	12.5
Cash Account	7,333,796	0.7	0.0	2.0	0.0
Hedge Fund Composite	3,408,000	0.3	0.0	0.0	0.0
Liquid Policy Portfolio Composite	49,078,819	4.6	0.0	6.0	5.0

Asset Allocation includes assets of the Emerging, Minority, and Women owned Investment Manager Program. The Investment Policy Statement for the Retirement Board of Allegheny County allows for the Pension's asset allocation to temporarily fall outside of the stated policy ranges due to market fluctuations and the Pension's hort-term cash flow needs. Recommendations are provided by the Pension's investment consultant regarding rebalancing of the Pension's asset allocation.



#### Historical Asset Allocation Total Fund As of September 30, 2021

Asset Allocation Attributes								
	Sep-20	)21	Jun-20	)21	Mar-20	)21	Dec-20	)20
	(\$)	%	(\$)	%	(\$)	%	(\$)	%
Total Fund	1,061,549,183	100.00	1,065,344,459	100.00	1,026,559,068	100.00	1,001,478,345	100.00
US Equity Composite	191,381,978	18.03	206,964,304	19.43	193,392,476	18.84	181,142,494	18.09
SSgA S&P 500 Index	98,897,469	9.32	113,473,325	10.65	104,550,326	10.18	98,460,158	9.83
Fragasso Large Core (EMWO)	6,777,074	0.64	6,761,732	0.63	6,304,002	0.61	5,996,108	0.60
Twin Capital Enhanced Equity	38,800,465	3.66	38,751,933	3.64	35,891,029	3.50	33,584,600	3.35
Earnest Small Value	16,004,954	1.51	16,313,304	1.53	16,519,815	1.61	14,500,459	1.45
Emerald Advisors Small Cap	15,892,394	1.50	16,117,598	1.51	15,541,396	1.51	15,151,956	1.51
Emerald Advisors All Cap (EMWO)	6,434,646	0.61	6,487,868	0.61	5,790,127	0.56	5,444,391	0.54
Ethos (EMWO)	2,044,862	0.19	2,075,980	0.19	1,975,837	0.19	1,823,352	0.18
CIM Small Cap (EMWO)	5,753,594	0.54	6,217,573	0.58	6,084,398	0.59	5,447,095	0.54
Cookson Peirce (EMWO)	776,520	0.07	764,991	0.07	735,546	0.07	734,375	0.07
Non US Equity Composite	179,122,457	16.87	206,133,519	19.35	196,273,748	19.12	189,635,847	18.94
SSgA ACWI ex US	38,754,304	3.65	39,954,917	3.75	37,847,078	3.69	36,545,346	3.65
Baillie Gifford Intl Equity	70,852,805	6.67	85,183,044	8.00	81,978,998	7.99	80,665,762	8.05
FIAM Select International Equity	33,092,364	3.12	44,294,565	4.16	41,842,836	4.08	40,473,954	4.04
Segall, Bryant & Hamill	36,422,984	3.43	36,700,993	3.44	34,604,835	3.37	31,950,784	3.19
Global Equity Composite	-	0.00	1,478,051	0.14	1,408,144	0.14	1,363,614	0.14
Columbus Macro (EMWO)	-	0.00	1,478,051	0.14	1,408,144	0.14	1,363,614	0.14
Core Fixed w Israel Bonds Composite	119,178,215	11.23	119,209,697	11.19	117,106,627	11.41	99,499,112	9.94
C S McKee	39,226,274	3.70	39,241,240	3.68	38,446,030	3.75	34,682,571	3.46
Federated Core Broad	35,286,105	3.32	35,257,659	3.31	34,528,279	3.36	30,268,451	3.02
CIM Investment Mgmt	23,870,703	2.25	23,881,595	2.24	23,636,469	2.30	13,950,130	1.39
StoneRidge Partners (EMWO)	5,506,700	0.52	5,508,900	0.52	5,458,158	0.53	5,557,249	0.55
Gridiron Capital Fixed Income (EMWO)	4,950,498	0.47	4,949,184	0.46	4,809,185	0.47	4,746,562	0.47
FNB (EMWO)	2,834,889	0.27	2,832,517	0.27	2,803,123	0.27	2,844,296	0.28
Israel Bonds	7,503,045	0.71	7,538,603	0.71	7,425,382	0.72	7,449,854	0.74
High Yield Fixed Composite	127,406,673	12.00	126,344,170	11.86	123,315,767	12.01	122,026,649	12.18
Oaktree High Yield	68,865,410	6.49	68,226,091	6.40	66,645,039	6.49	66,100,725	6.60
Federated High Yield	54,922,299	5.17	54,540,895	5.12	53,158,302	5.18	52,490,844	5.24
Sound Point	3,618,963	0.34	3,577,185	0.34	3,512,425	0.34	3,435,080	0.34
TIPS Fixed Composite	41,960,670	3.95	41,239,579	3.87	39,942,901	3.89	40,538,874	4.05
MCM TIPS	41,960,670	3.95	41,239,579	3.87	39,942,901	3.89	40,538,874	4.05



#### Historical Asset Allocation Total Fund As of September 30, 2021

	Sep-20	21	Jun-20	21	Mar-20	21	Dec-2020		
	(\$)	%	(\$)	%	(\$)	%	(\$)	%	
Real Estate Composite	111,856,753	10.54	107,253,514	10.07	104,803,678	10.21	103,565,303	10.34	
Morgan Stanley Prime Property Fund	81,023,718	7.63	76,563,491	7.19	74,490,799	7.26	73,097,605	7.30	
Oaktree Real Estate	6,978,943	0.66	6,982,276	0.66	6,948,844	0.68	6,955,225	0.69	
Washington Alliance (EMWO)	13,174,110	1.24	13,174,110	1.24	12,824,195	1.25	12,824,195	1.28	
Washington Alliance II (EMWO)	1,181,352	0.11	1,181,352	0.11	1,236,379	0.12	1,236,379	0.12	
Siguler Guff Distressed RE	9,498,629	0.89	9,352,285	0.88	9,303,460	0.91	9,451,899	0.94	
ERECT Composite	10,497,897	0.99	10,370,488	0.97	10,215,645	1.00	9,912,474	0.99	
ERECT Fund II	10,497,897	0.99	10,370,488	0.97	10,215,645	1.00	9,912,474	0.99	
Private Equity Composite	206,151,095	19.42	203,107,237	19.06	193,691,775	18.87	185,755,110	18.55	
Life Settlement Composite	14,172,823	1.34	14,953,680	1.40	14,978,933	1.46	24,077,840	2.40	
Hedge Fund Composite	3,408,000	0.32	3,394,452	0.32	3,212,734	0.31	3,061,813	0.31	
Gridiron Capital Multi-Asset (EMWO)	3,407,831	0.32	3,394,284	0.32	3,212,566	0.31	3,061,645	0.31	
Liquid Policy Portfolio Composite	49,078,819	4.62	18,484,307	1.74	24,814,935	2.42	-	0.00	
BlackRock Liquidity iShares Public Pension Fund	49,078,819	4.62	18,484,307	1.74	24,814,935	2.42	-	0.00	
Cash Account	7,333,796	0.69	6,411,455	0.60	3,402,921	0.33	15,036,468	1.50	



Financial Reconciliation				
	Market Value 07/01/2021	Net Flows	Return On Investment	Market Value 09/30/2021
Fotal Fund	1,065,344,459	-12,607,326	9,857,020	1,061,549,183
SSgA S&P 500 Index	113,473,325	-14,994,425	424,143	98,897,469
Fragasso Large Core (EMWO)	6,761,732	9,322	15,342	6,777,074
Twin Capital Enhanced Equity	38,751,933	34,805	48,480	38,800,465
Earnest Small Value	16,313,304	36,756	-308,350	16,004,954
Emerald Advisors Small Cap	16,117,598	28,839	-225,205	15,892,394
Emerald Advisors All Cap (EMWO)	6,487,868	9,800	-53,222	6,434,646
Ethos (EMWO)	2,075,980	-	-31,118	2,044,862
CIM Small Cap (EMWO)	6,217,573	10,781	-464,215	5,753,594
Cookson Peirce (EMWO)	764,991	993	11,529	776,520
JS Equity Composite	206,964,304	-14,863,129	-582,614	191,381,978
SSgA ACWI ex US	39,954,917	6,867	-1,200,613	38,754,304
Baillie Gifford Intl Equity	85,183,044	-10,000,000	-4,330,239	70,852,805
FIAM Select International Equity	44,294,565	-10,000,000	-1,202,201	33,092,364
Segall, Bryant & Hamill	36,700,993	58,164	-278,008	36,422,984
Ion US Equity Composite	206,133,519	-19,934,969	-7,011,062	179,122,457
Columbus Macro (EMWO)	1,478,051	-1,471,279	-6,772	-
Blobal Equity Composite	1,478,051	-1,471,279	-6,772	-
C S McKee	39,241,240	19,620	-14,965	39,226,274
Federated Core Broad	35,257,659	22,733	28,447	35,286,105
CIM Investment Mgmt	23,881,595	14,926	-10,892	23,870,703
StoneRidge Partners (EMWO)	5,508,900	2,766	-2,200	5,506,700
Gridiron Capital Fixed Income (EMWO)	4,949,184	8,072	1,313	4,950,498
FNB (EMWO)	2,832,517	2,469	2,373	2,834,889
Israel Bonds	7,538,603	3,751	-35,558	7,503,045
Core Fixed w Israel Bonds Composite	119,209,697	74,337	-31,482	119,178,215
Oaktroa High Viold	68,226,091		744,224	60 065 440
Oaktree High Yield Federated High Yield	, ,	-	744,224 381,405	68,865,410 54,922,299
-	54,540,895	-		
Sound Point	3,577,185	-	41,778	3,618,963
ligh Yield Fixed Composite	126,344,170	• •	1,167,407	127,406,673
MCM TIPS	41,239,579	3,145	721,092	41,960,670
IPS Fixed Composite	41,239,579	3,145	721,092	41,960,670



#### Financial Reconciliation Total Fund 1 Quarter Ending September 30, 2021

	Market Value 07/01/2021	Net Flows	Return On Investment	Market Value 09/30/2021
Morgan Stanley Prime Property Fund	76,563,491	-	4,460,227	81,023,718
Oaktree Real Estate	6,982,276	-	-246,145	6,978,943
Washington Alliance (EMWO)	13,174,110	-	-	13,174,110
Washington Alliance II (EMWO)	1,181,352	-	-	1,181,352
Siguler Guff Distressed RE	9,352,285	-536,086	822,324	9,498,629
Real Estate Composite	107,253,514	-536,086	5,036,406	111,856,753
ERECT Composite	10,370,488	-	127,409	10,497,897
Private Equity Composite	203,107,237	-7,254,384	11,055,274	206,151,095
ife Settlement Composite	14,953,680	-547,885	-234,305	14,172,823
Gridiron Capital Multi-Asset (EMWO)	3,394,284	7,161	13,548	3,407,831
Maplewood (EMWO)	168	-	-	168
Hedge Fund Composite	3,394,452	7,161	13,548	3,408,000
BlackRock Liquidity iShares Public Pension Fund	18,484,307	31,000,000	-405,488	49,078,819
iquid Policy Portfolio Composite	18,484,307	31,000,000	-405,488	49,078,819
MLP Composite	8			8
Cash Account	6,411,455	915,762	7,607	7,333,796

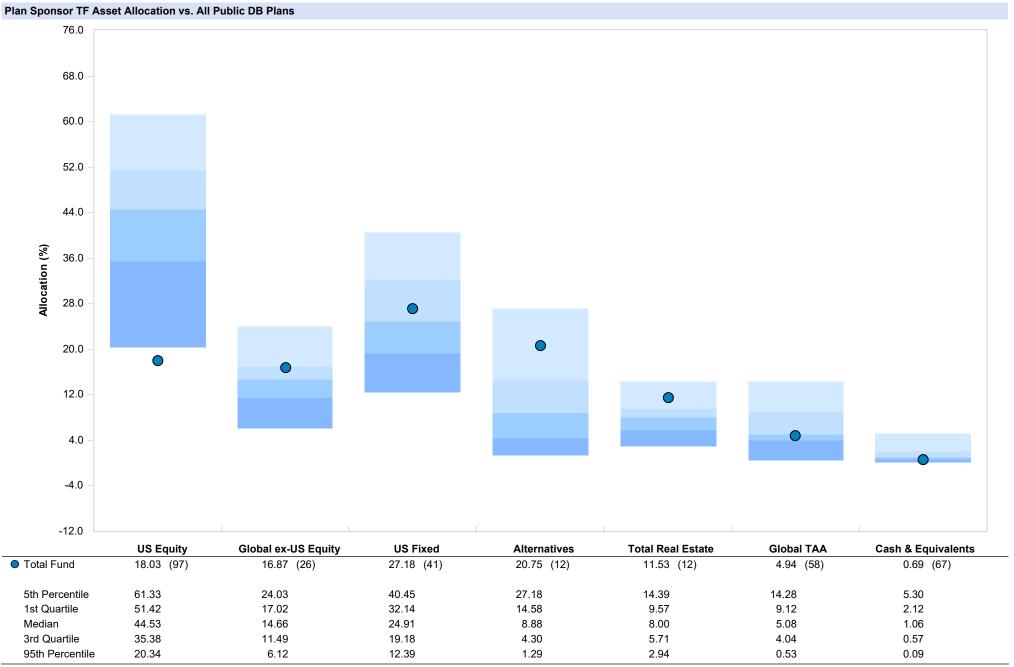


Financial Reconciliation					
	Market Value 01/01/2021	Net Flows	Income	Return On Investment	Market Value 09/30/2021
	4 004 470 045	00 005 475	447 470		
Total Fund	1,001,478,345	-33,095,175	447,478	100,165,056	1,061,549,183
SSgA S&P 500 Index	98,460,158	-14,988,799	-	15,437,311	98,897,469
Fragasso Large Core (EMWO)	5,996,108	26,599	-1,572	780,795	6,777,074
Twin Capital Enhanced Equity	33,584,600	98,447	-1,563	5,215,743	38,800,465
Earnest Small Value	14,500,459	105,158	-1,262	1,504,495	16,004,954
Emerald Advisors Small Cap	15,151,956	87,243	-53,636	739,522	15,892,394
Emerald Advisors All Cap (EMWO)	5,444,391	27,818	4,190	990,255	6,434,646
Ethos (EMWO)	1,823,352		-	221,510	2,044,862
CIM Small Cap (EMWO)	5,447,095	30,995	-234	305,649	5,753,594
Cookson Peirce (EMWO)	734,375	2,882	157	42,145	776,520
US Equity Composite	181,142,494	-14,609,656	-53,920	25,237,424	191,381,978
22. 4. 4.214// 1/2		40.005		0.000.057	00 754 004
SSgA ACWI ex US	36,545,346	13,605	-	2,208,957	38,754,304
Baillie Gifford Intl Equity	80,665,762	-10,000,000	-	187,044	70,852,805
FIAM Select International Equity	40,473,954	-10,000,000	-	2,618,409	33,092,364
Segall, Bryant & Hamill	31,950,784	168,971	598,155	4,472,200	36,422,984
Ion US Equity Composite	189,635,847	-19,817,425	598,155	9,486,610	179,122,457
Columbus Macro (EMWO)	1,363,614	-1,466,187	-22	107,665	-
Global Equity Composite	1,363,614	-1,466,187	-22	107,665	-
C S McKee	34,682,571	5,064,291	-96.702	-456,296	39,226,274
Federated Core Broad	30,268,451	5,063,844	-3,982	17,655	35,286,105
CIM Investment Mgmt	13,950,130	10,038,418	907	-79,427	23,870,703
StoneRidge Partners (EMWO)	5,557,249	11,035	-2,663	-50,549	5,506,700
Gridiron Capital Fixed Income (EMWO)	4,746,562	23,830	-1,119	203,936	4,950,498
FNB (EMWO)	2,844,296	7,417	-1,113	-9,407	2,834,889
Israel Bonds	7,449,854	11,183	24,327	53,191	7,503,045
Core Fixed w Israel Bonds Composite	99,499,112	20,220,017	-79,231	-320,898	119,178,215
Oaktree High Yield	66,100,725	-	-	3,062,498	68,865,410
Federated High Yield	52,490,844	-	-	2,431,456	54,922,299
Sound Point	3,435,080	-	-	183,883	3,618,963
ligh Yield Fixed Composite	122,026,649	-	-	5,677,837	127,406,673
MCM TIPS	40,538,874	9,918	-	1,421,797	41,960,670



	Market Value 01/01/2021	Net Flows	Income	Return On Investment	Market Value 09/30/2021
Morgan Stanley Prime Property Fund	73,097,605	-	-	7,926,114	81,023,718
Oaktree Real Estate	6,955,225	-	-	-100,341	6,978,943
Washington Alliance (EMWO)	12,824,195	-329,268	-	679,184	13,174,110
Washington Alliance II (EMWO)	1,236,379	-55,028	-	-	1,181,352
Siguler Guff Distressed RE	9,451,899	-880,081	-	1,121,388	9,498,629
Real Estate Composite	103,565,303	-1,264,377	-	9,626,345	111,856,753
ERECT Composite	9,912,474	-	-	585,423	10,497,897
Private Equity Composite	185,755,110	-18,123,997	-	44,250,742	206,151,095
Life Settlement Composite	24,077,840	-9,946,565		80,949	14,172,823
Gridiron Capital Multi-Asset (EMWO)	3,061,645	51,392	-439	346,187	3,407,831
Maplewood (EMWO)	168	-	-	-	168
Hedge Fund Composite	3,061,813	51,392	-439	346,187	3,408,000
BlackRock Liquidity iShares Public Pension Fund	-	47,796,155	-	1,282,664	49,078,819
Liquid Policy Portfolio Composite	-	47,796,151	-	1,282,668	49,078,819
MLP Composite	25,862,747	-28,219,932	-17,149	2,357,192	8
Cash Account	15,036,468	-7,724,515	84	25,115	7,333,796







Asset Allocation & Performance										
	Allocation	n				Pe	rformance(%	%)		
	Market Value \$	%	МТН	QTR	YTD	1 YR	3 YR	5 YR	Inception	Inception Date
Total Fund	1,061,549,183	100.0	-1.36	0.82	9.40	17.89	8.60	9.10	7.63	12/1993
Total Fund Policy Index			-0.71	1.49	10.91	20.74	9.76	9.32	7.79	
US Equity Composite	191,381,978	18.0	-4.41	-0.43	13.61	30.66	14.66	16.16	9.66	11/1993
FT Wilshire 5000 Total Market TR Index			-4.43	0.14	15.62	32.35	16.19	17.01	10.41	
Non US Equity Composite	179,122,457	16.9	-4.65	-3.58	4.74	21.58	9.40	10.06	5.79	01/2001
Non US Equity Policy Index			-3.20	-2.99	6.07	24.34	8.11	8.98	4.75	
Core Fixed w Israel Bonds Composite*	119,178,215	11.2	-0.66	-0.09	-0.75	0.41	5.60	3.29	6.86	01/1983
Blmbg. U.S. Aggregate Index			-0.87	0.05	-1.56	-0.90	5.35	2.94	6.89	
High Yield Fixed Composite	127,406,673	12.0	0.17	0.84	4.41	10.61	6.03	5.73	6.92	04/2008
FTSE High Yield Market Capped Index			0.08	0.93	4.52	11.10	6.24	6.05	7.32	
TIPS Fixed Composite	41,960,670	4.0	-0.72	1.74	3.48	5.14	7.45	4.73	3.84	04/2008
Bloomberg U.S. TIPS Index			-0.72	1.75	3.51	5.19	7.45	4.34	3.80	
Real Estate Composite	111,856,753	10.5	4.77	4.82	9.29	11.05	6.16	8.13	8.64	04/2003
NCREIF Fund Index-ODCE (VW) (Net)			6.42	6.42	12.42	13.65	6.13	6.56	7.13	
ERECT Composite	10,497,897	1.0	1.23	1.23	5.91	6.56	8.19	6.41	6.83	09/2010
CPI - All Urban Consumers (SA)			0.41	1.16	4.81	5.38	2.82	2.59	2.09	
Total Private Equity w Life Settlement Composite*	220,323,918	20.8	0.17	4.65	20.00	26.31	13.64	13.51	7.72	04/2003
Total Private Equity Policy Index			0.18	5.00	22.08	28.50	14.30	13.90	7.82	
Hedge Fund Composite	3,408,000	0.3	-2.03	0.19	9.60	20.30	6.04	1.61	2.64	04/2003
90 Day T-Bill Index + 3%			0.25	0.76	2.28	3.07	4.21	4.19	4.27	
Liquid Policy Portfolio Composite	49,078,819	4.6	-3.07	-0.79	N/A	N/A	N/A	N/A	6.64	03/2021
Liquid Policy Benchmark			-2.96	-0.56	N/A	N/A	N/A	N/A	6.86	
Cash Account	7,333,796	0.7	0.01	0.08	0.42	0.48	1.33	1.24	0.73	01/2012
90 Day U.S. Treasury Bill			0.01	0.02	0.04	0.07	1.18	1.15	0.63	



\* All returns prior to March 2021 are from the original Core Fixed Composite and the Private Equity Composite, respectively. All returns from March 2021 and forward are from the composites inclusive of the Israel Bonds and Life Settlement funds, respectively

Asset Allocation & Performance									
	Allocatio	n				Performar	1Ce(%)		
	Market Value \$	%	QTR	YTD	1 YR	3 YR	5 YR	Inception	Inception Date
Fotal Fund	1,061,549,183	100.0	0.82	9.40	17.89	8.60	9.10	7.63	12/1993
Total Fund Policy Index			1.49	10.91	20.74	9.76	9.32	7.79	
JS Equity Composite	191,381,978	18.0	-0.43	13.61	30.66	14.66	16.16	9.66	11/1993
FT Wilshire 5000 Total Market TR Index			0.14	15.62	32.35	16.19	17.01	10.41	
SSgA S&P 500 Index	98,897,469	9.3	0.56	15.88	30.06	16.04	16.93	9.93	11/2007
S&P 500 Index			0.58	15.92	30.00	15.99	16.90	9.88	
Fragasso Large Core (EMWO)	6,777,074	0.6	0.09	12.56	25.59	14.38	15.05	13.40	09/2012
S&P 500 Index			0.58	15.92	30.00	15.99	16.90	15.39	
Twin Capital Enhanced Equity	38,800,465	3.7	0.04	15.23	28.20	14.36	15.47	10.09	01/2006
S&P 500 Index			0.58	15.92	30.00	15.99	16.90	10.42	
arnest Small Value	16,004,954	1.5	-2.12	9.65	42.11	9.83	12.95	13.99	06/2009
Russell 2000 Value Index			-2.98	22.92	63.92	8.58	11.03	12.87	
Emerald Advisors Small Cap	15,892,394	1.5	-1.58	4.31	31.73	13.08	16.99	12.09	11/2004
Russell 2000 Growth Index			-5.65	2.82	33.27	11.70	15.34	10.62	
Emerald Advisors All Cap (EMWO)	6,434,646	0.6	-0.97	17.66	38.13	24.18	25.28	21.07	10/2015
Russell 3000 Growth Index			0.69	13.49	27.57	21.27	22.30	20.81	
Ethos (EMWO)	2,044,862	0.2	-1.50	12.15	34.26	17.08	17.87	17.28	08/2016
S&P 500 Index			0.58	15.92	30.00	15.99	16.90	16.34	
CIM Small Cap (EMWO)	5,753,594	0.5	-7.63	5.09	35.31	5.81	10.19	7.34	01/2014
Russell 2000 Index			-4.36	12.41	47.68	10.54	13.45	10.05	
Cookson Peirce (EMWO)	776,520	0.1	1.38	5.34	18.53	N/A	N/A	17.11	12/2018
Russell 3000 Index			-0.10	14.99	31.88	16.00	16.85	19.38	
Ion US Equity Composite	179,122,457	16.9	-3.58	4.74	21.58	9.40	10.06	5.79	01/2001
Non US Equity Policy Index			-2.99	6.07	24.34	8.11	8.98	4.75	
SSgA ACWI ex US	38,754,304	3.7	-3.02	6.01	24.36	8.27	9.24	5.85	05/2015
MSCI AC World ex USA (Net)			-2.99	5.90	23.92	8.03	8.94	5.49	
Baillie Gifford Intl Equity	70,852,805	6.7	-5.42	-0.12	14.80	12.83	12.56	10.17	08/2009
MSCI AC World ex USA (Net)			-2.99	5.90	23.92	8.03	8.94	6.50	



	Allocation	1				Performar	nce(%)		
	Market Value \$	%	QTR	YTD	1 YR	3 YR	5 YR	Inception	Inception Date
FIAM Select International Equity	33,092,364	3.1	-2.77	6.41	24.72	10.16	9.62	5.25	01/2001
FIAM Policy Index			-2.99	5.90	23.92	8.03	8.94	4.67	
Segall, Bryant & Hamill	36,422,984	3.4	-0.92	13.46	30.86	1.95	5.48	4.96	05/2015
MSCI EAFE Small Cap (net) Index			0.90	10.02	29.02	9.05	10.38	8.73	
Core Fixed w Israel Bonds Composite*	119,178,215	11.2	-0.09	-0.75	0.41	5.60	3.29	6.86	01/1983
Blmbg. U.S. Aggregate Index			0.05	-1.56	-0.90	5.35	2.94	6.89	
С Ѕ МсКее	39,226,274	3.7	-0.09	-1.28	-0.73	5.63	3.25	7.25	01/1983
Blmbg. U.S. Aggregate Index			0.05	-1.56	-0.90	5.35	2.94	6.89	
Federated Core Broad	35,286,105	3.3	0.02	-0.34	1.34	6.87	4.24	5.02	09/2006
BImbg. U.S. Aggregate Index			0.05	-1.56	-0.90	5.35	2.94	4.21	
CIM Investment Mgmt	23,870,703	2.2	-0.11	-1.05	-0.70	4.24	2.32	3.30	11/2005
Bloomberg Intermediate US Govt/Credit Idx			0.02	-0.87	-0.40	4.63	2.60	3.69	
StoneRidge Partners (EMWO)	5,506,700	0.5	-0.09	-1.11	-0.78	3.29	2.13	2.38	08/2015
StoneRidge Policy Index			0.04	-0.73	0.10	4.95	2.91	3.10	
Gridiron Capital Fixed Income (EMWO)	4,950,498	0.5	-0.14	3.79	10.41	6.87	N/A	4.48	02/2017
Blmbg. U.S. Aggregate Index			0.05	-1.56	-0.90	5.35	2.94	3.78	
FNB (EMWO)	2,834,889	0.3	0.00	-0.59	0.12	4.34	N/A	2.90	07/2017
Bloomberg Intermed Aggregate Index			0.05	-0.79	-0.38	4.39	2.47	3.03	
Israel Bonds	7,503,045	0.7	-0.52	0.56	-0.40	2.55	1.86	2.74	01/2012
High Yield Fixed Composite	127,406,673	12.0	0.84	4.41	10.61	6.03	5.73	6.92	04/2008
FTSE High Yield Market Capped Index			0.93	4.52	11.10	6.24	6.05	7.32	
Daktree High Yield	68,865,410	6.5	0.94	4.18	10.71	5.16	4.90	6.56	04/2008
FTSE High Yield Market Capped Index			0.93	4.52	11.10	6.24	6.05	7.32	
Federated High Yield	54,922,299	5.2	0.70	4.63	10.45	7.34	N/A	6.18	07/2017
Blmbg. U.S. High Yield - 2% Issuer Cap			0.89	4.54	11.27	6.89	6.50	6.05	
Sound Point	3,618,963	0.3	1.17	5.35	11.03	3.72	4.76	4.63	08/2013
Credit Suisse Leveraged Loan Index			1.13	4.66	8.46	4.09	4.64	4.22	
TIPS Fixed Composite	41,960,670	4.0	1.74	3.48	5.14	7.45	4.73	3.84	04/2008
Bloomberg U.S. TIPS Index			1.75	3.51	5.19	7.45	4.34	3.80	

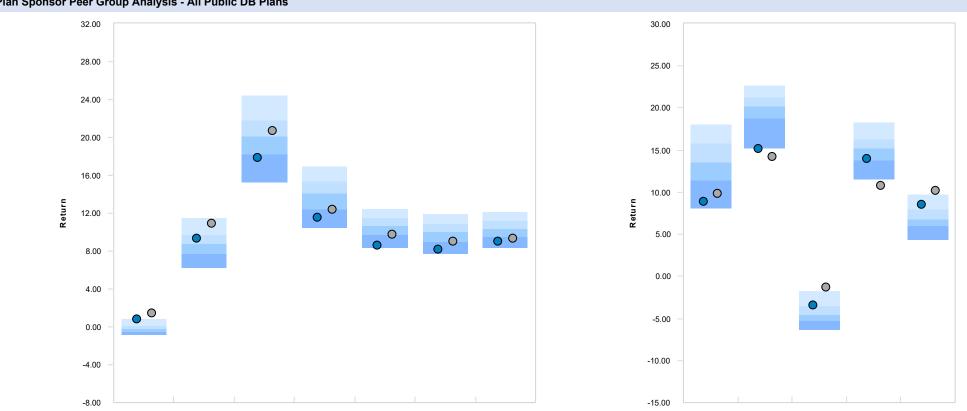
\* All returns prior to March 2021 are from the original Core Fixed Composite. All returns March 2021 and forward are from the composite inclusive of the Israel Bonds.



As of September 30, 2021

	Allocation	า	Performance(%)						
	Market Value \$	%	QTR	YTD	1 YR	3 YR	5 YR	Inception	Inceptior Date
MCM TIPS	41,960,670	4.0	1.74	3.48	5.14	7.45	N/A	5.20	12/2016
Bloomberg U.S. TIPS Index			1.75	3.51	5.19	7.45	4.34	5.00	
Real Estate Composite	111,856,753	10.5	4.82	9.29	11.05	6.16	8.13	8.64	04/2003
NCREIF Fund Index-ODCE (VW) (Net)			6.42	12.42	13.65	6.13	6.56	7.13	
Morgan Stanley Prime Property Fund	81,023,718	7.6	5.83	10.84	12.48	6.71	7.46	8.60	04/2003
NCREIF Fund Index-ODCE (VW) (Net)			6.42	12.42	13.65	6.13	6.56	7.13	
Oaktree Real Estate	6,978,943	0.7	-0.05	0.34	0.21	0.32	2.86	4.38	08/2013
Washington Alliance (EMWO)	13,174,110	1.2	0.00	5.31	9.30	7.47	16.00	12.70	08/2013
Washington Alliance II (EMWO)	1,181,352	0.1	0.00	0.00	0.00	N/A	N/A	0.00	03/2020
Siguler Guff Distressed RE	9,498,629	0.9	7.69	10.54	11.80	5.12	10.09	7.50	03/2014
ERECT Composite	10,497,897	1.0	1.23	5.91	6.56	8.19	6.41	6.83	09/2010
CPI - All Urban Consumers (SA)			1.16	4.81	5.38	2.82	2.59	2.09	
Private Equity Composite	206,151,095	19.4	5.10	21.52	27.91	14.12	13.80	7.79	04/2003
Private Equity Policy Index			5.10	21.52	27.91	14.12	13.80	7.79	
Life Settlement Composite	14,172,823	1.3	-1.62	0.15	-10.80	-5.02	-4.93	5.38	09/2009
Hedge Fund Composite	3,408,000	0.3	0.19	9.60	20.30	6.04	1.61	2.64	04/2003
90 Day T-Bill Index + 3%			0.76	2.28	3.07	4.21	4.19	4.27	
Gridiron Capital Multi-Asset (EMWO)	3,407,831	0.3	0.19	9.60	20.30	N/A	N/A	10.54	02/2019
HFRI FoF Composite Lagged			0.68	5.67	14.24	6.48	5.79	8.34	
Liquid Policy Portfolio Composite	49,078,819	4.6	-0.79	N/A	N/A	N/A	N/A	6.64	03/2021
Liquid Policy Benchmark			-0.56	N/A	N/A	N/A	N/A	6.86	
BlackRock Liquidity iShares Public Pension Fund	49,078,819	4.6	-0.79	N/A	N/A	N/A	N/A	4.50	04/2021
Liquid Policy Benchmark			-0.56	N/A	N/A	N/A	N/A	4.77	
Cash Account	7,333,796	0.7	0.08	0.42	0.48	1.33	1.24	0.73	01/2012

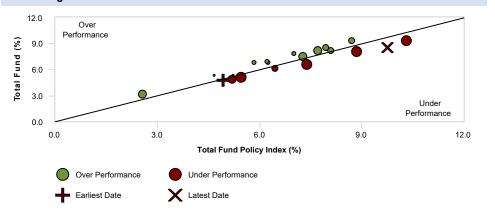




#### Plan Sponsor Peer Group Analysis - All Public DB Plans

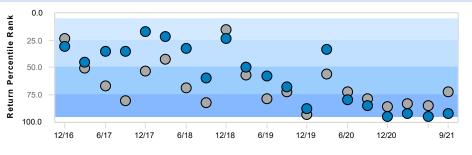
	QTR	FYTD	1 YR	2 YR	3 YR	4 YR	5 YR		2020	2019	2018	2017	2016
Total Fund	0.82 (6)	9.40 (33)	17.89 (79)	11.53 (90)	8.60 (93)	8.23 (90)	9.10 (84)	Total Fund	8.93 (93)	15.16 (95)	-3.36 (23)	13.97 (7 <sup>.</sup>	) 8.60 (15)
Total Fund Policy Index	1.49 (2)	10.91 (9)	20.74 (40)	12.46 (75)	9.76 (73)	9.09 (74)	9.32 (79)	Total Fund Policy Index	9.82 (89)	14.24 (97)	-1.27 (4)	10.82 (97	7) 10.27 (3)
Median	-0.20	8.77	20.06	14.15	10.61	9.97	10.37	Median	13.60	20.15	-4.54	15.25	6.78
Comparative Performan	се												
	En	Qtr ding -2021		1 Qtr Ending Mar-2021		1 Qt Endir Dec-20	ng	1 Qtr Ending Sep-2020		1 Qtr Ending Jun-2020		E	1 Qtr nding ar-2020
Total Fund	4.90	)		3.44		7.76		4.22		8.29		-10.4	14
Total Fund Policy Index	5.43	3		3.65		8.87		3.18		9.67		-10.8	36





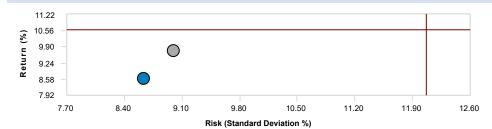
#### 3 Yr Rolling Under/Over Performance - 5 Years

#### 3 Yr Rolling Percentile Ranking - 5 Years

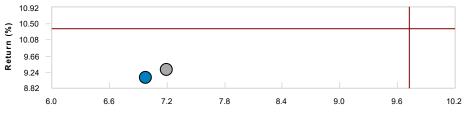


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count	
Total Fund	20	3 (15%)	7 (35%)	3 (15%)	7 (35%)	
Total Fund Policy Index	20	2 (10%)	1 (5%)	9 (45%)	8 (40%)	

#### Peer Group Scattergram - 3 Years



#### Peer Group Scattergram - 5 Years



Risk (Standard Deviation %)

	Return	Standard Deviation		Return	Standard Deviation
Total Fund	8.60	8.63	Total Fund	9.10	6.98
Total Fund Policy Index	9.76	8.99	Total Fund Policy Index	9.32	7.19
Median	10.61	12.07	Median	10.37	9.72

#### **Historical Statistics - 3 Years**

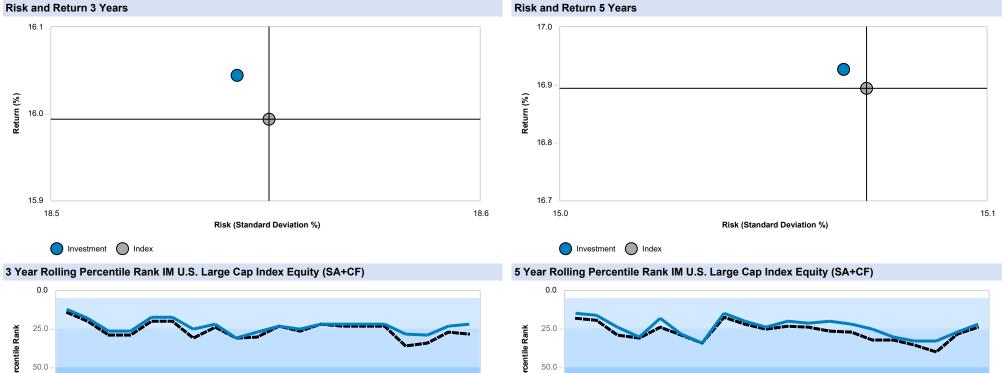
	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Fund	1.58	96.76	107.61	-0.57	-0.69	0.85	0.95	5.82
Total Fund Policy Index	0.00	100.00	100.00	0.00	N/A	0.94	1.00	5.75

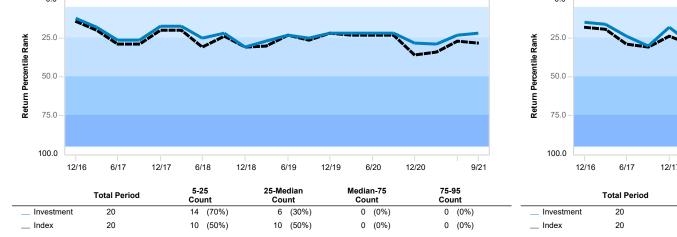
#### **Historical Statistics - 5 Years**

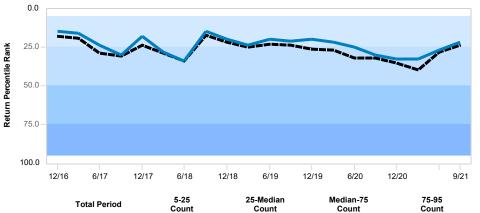
	Tracking U Ma Error Caj		Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Fund	1.41	101.54	109.07	0.23	-0.16	1.11	0.95	4.64
Total Fund Policy Index	0.00	100.00	100.00	0.00	N/A	1.10	1.00	4.55



Historical Statistic	s 3 Years							Historical Statistics 5 Years								
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters	
Investment	16.04	18.54	0.83	100.05	10	99.86	2	Investment	16.93	15.07	1.04	100.04	17	99.87	3	
Index	15.99	18.55	0.83	100.00	10	100.00	2	Index	16.90	15.07	1.04	100.00	17	100.00	3	







7 (35%)

11 (55%)

0 (0%)

0 (0%)

13 (65%)

9 (45%)



0 (0%)

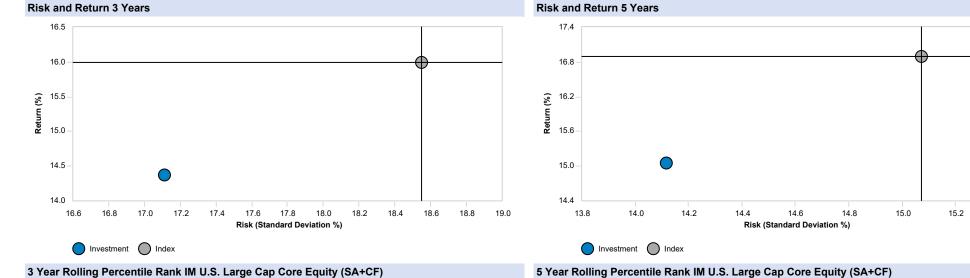
0 (0%)

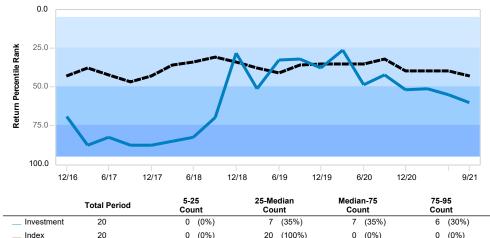
#### Strategy Review SSgA S&P 500 Index | S&P 500 Index As of September 30, 2021





Historical Statistic	s 3 Years							Historical Statistics 5 Years									
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		
Investment	14.38	17.11	0.80	90.90	10	91.72	2	Investment	15.05	14.12	0.98	91.94	17	94.93	3		
Index	15.99	18.55	0.83	100.00	10	100.00	2	Index	16.90	15.07	1.04	100.00	17	100.00	3		





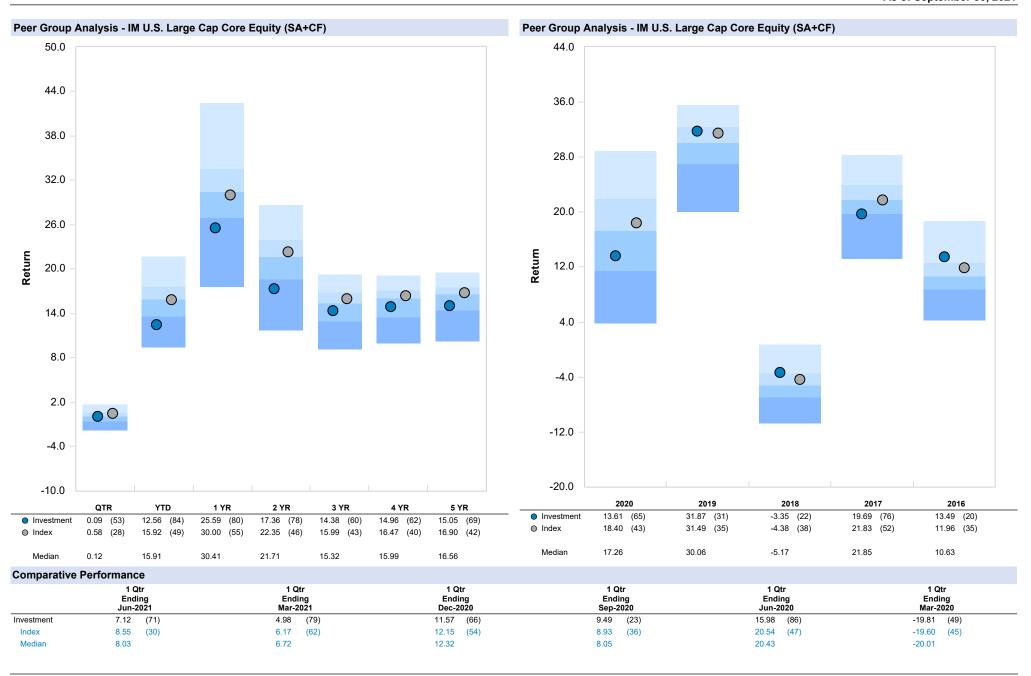
5 Year Rolling Percentile Rank IM U.S. Large Cap Core Equity (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count		Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	7 (35%)	7 (35%)	6 (30%)	Investment	17	0 (0%)	0 (0%)	11 (65%)	6 (35%)
Index	20	0 (0%)	20 (100%)	0 (0%)	0 (0%)	Index	20	0 (0%)	18 (90%)	2 (10%)	0 (0%)

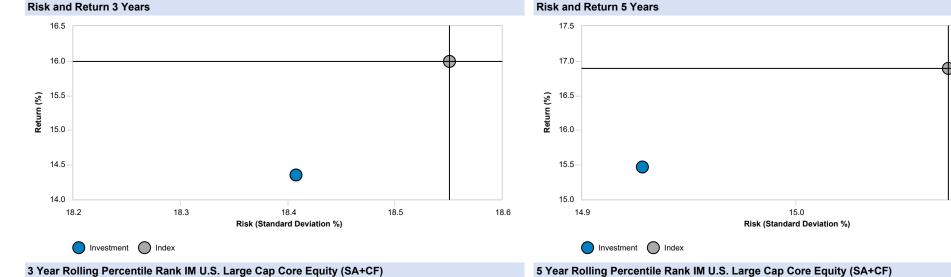


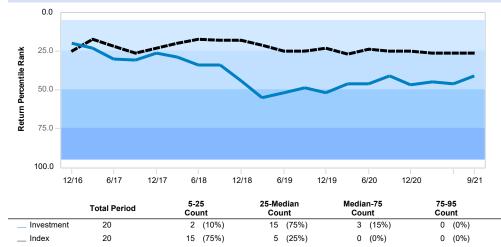
15.4





Historical Statistic	s 3 Years							Historical Statistics 5 Years									
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		
Investment	14.36	18.41	0.76	96.47	10	101.09	2	Investment	15.47	14.93	0.96	95.95	17	100.44	3		
Index	15.99	18.55	0.83	100.00	10	100.00	2	Index	16.90	15.07	1.04	100.00	17	100.00	3		





0 (0%)

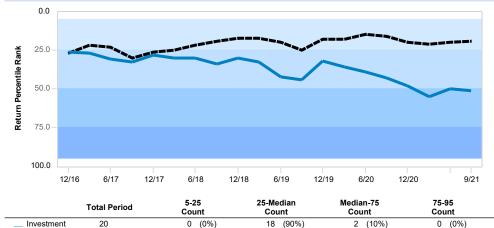
17 (85%)

20

20

Investment

\_\_ Index



18 (90%)

3 (15%)

2 (10%)

0 (0%)

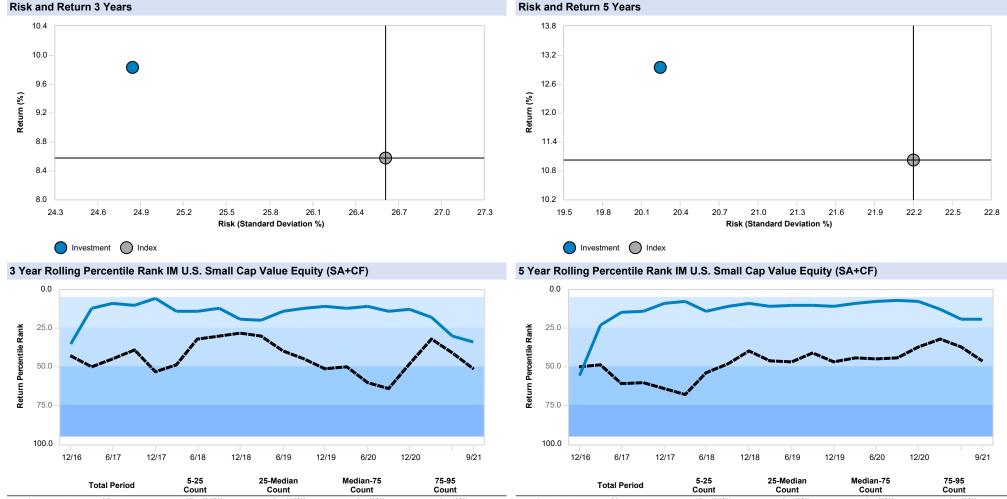
0 (0%)

15.1



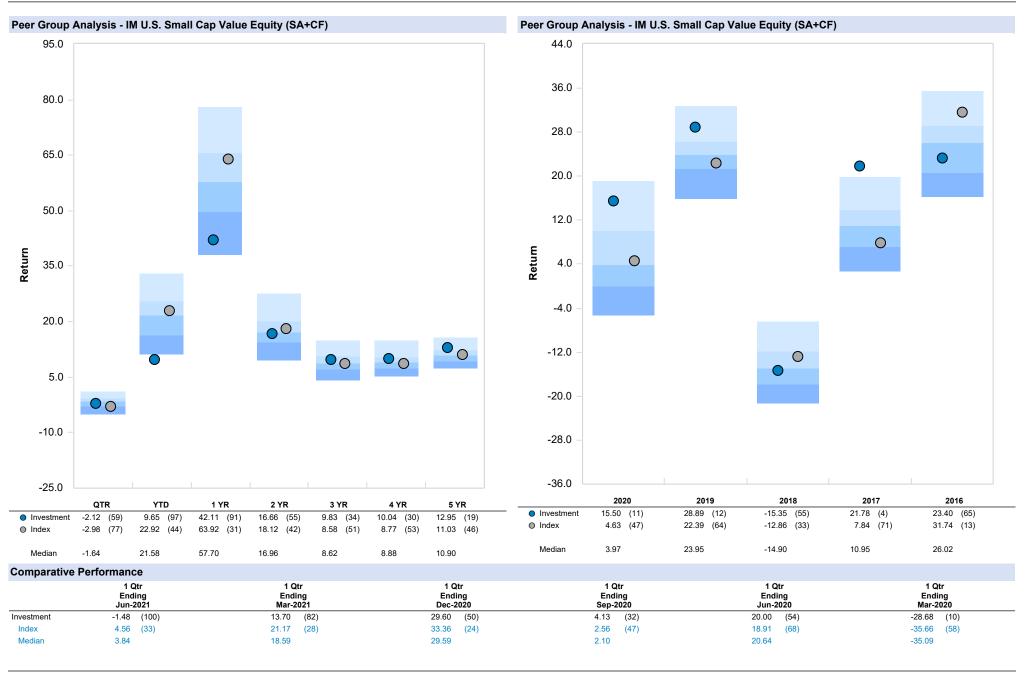


Historical Statistic	s 3 Years							Historical Statistics 5 Years									
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		
Investment	9.83	24.84	0.46	94.82	8	90.72	4	Investment	12.95	20.24	0.65	92.40	15	81.87	5		
Index	8.58	26.61	0.40	100.00	8	100.00	4	Index	11.03	22.20	0.53	100.00	14	100.00	6		



0 (0%) 20 17 (85%) 3 (15%) 0 (0%) 0 (0%) 20 19 (95%) 0 (0%) 1 (5%) Investment Investment 20 20 0 (0%) 15 (75%) 5 (25%) 0 (0%) 15 (75%) 5 (25%) 0 (0%) \_\_ Index \_\_ Index 0 (0%)



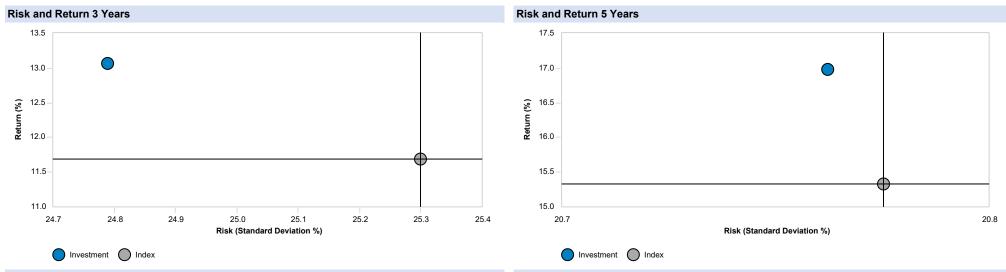


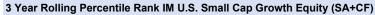


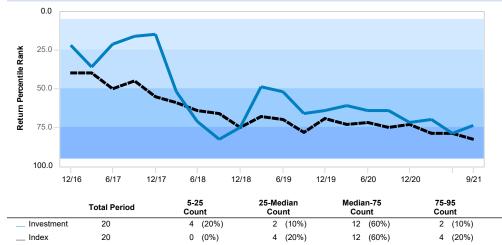
### Strategy Review Emerald Advisors Small Cap | Russell 2000 Growth Index

As of September 30, 2021

Historical Statistic	cs 3 Years							Historical Statistics 5 Years									
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		
Investment	13.08	24.79	0.57	99.69	8	95.41	4	Investment	16.99	20.76	0.81	100.51	15	93.31	5		
Index	11.70	25.30	0.52	100.00	8	100.00	4	Index	15.34	20.78	0.74	100.00	16	100.00	4		





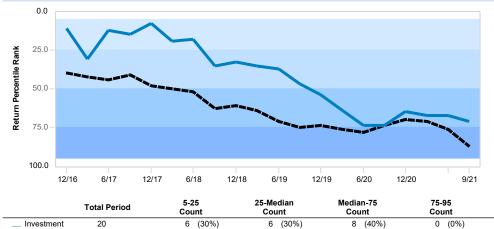


5 Year Rolling Percentile Rank IM U.S. Small Cap Growth Equity (SA+CF)

0 (0%)

20

\_\_ Index



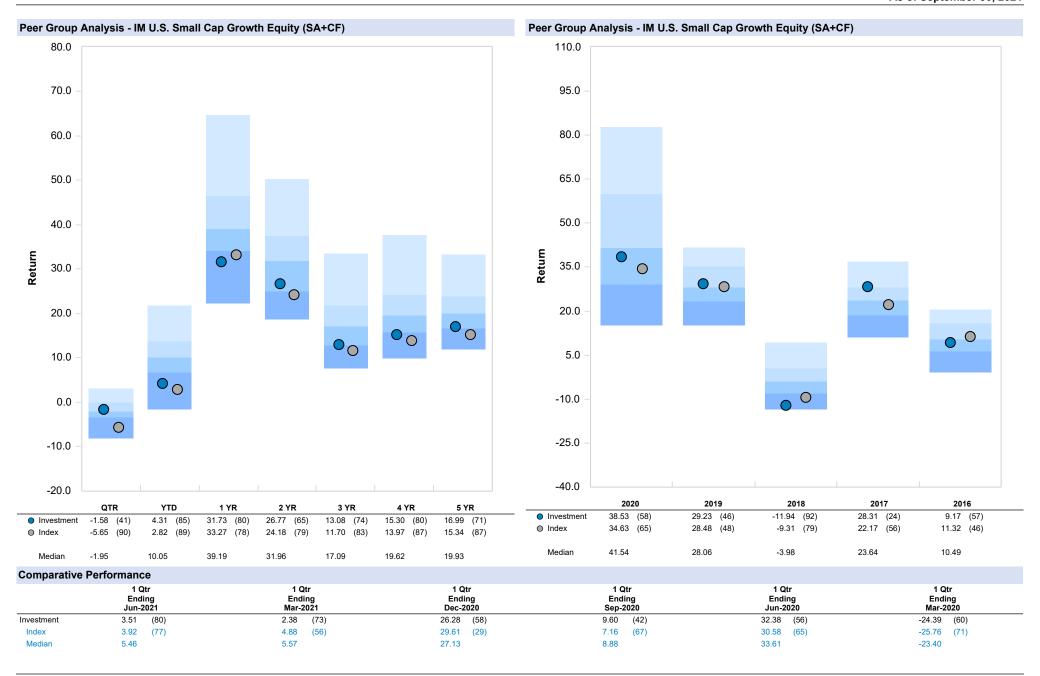
6 (30%)

10 (50%)



4 (20%)

#### Strategy Review Emerald Advisors Small Cap | Russell 2000 Growth Index As of September 30, 2021

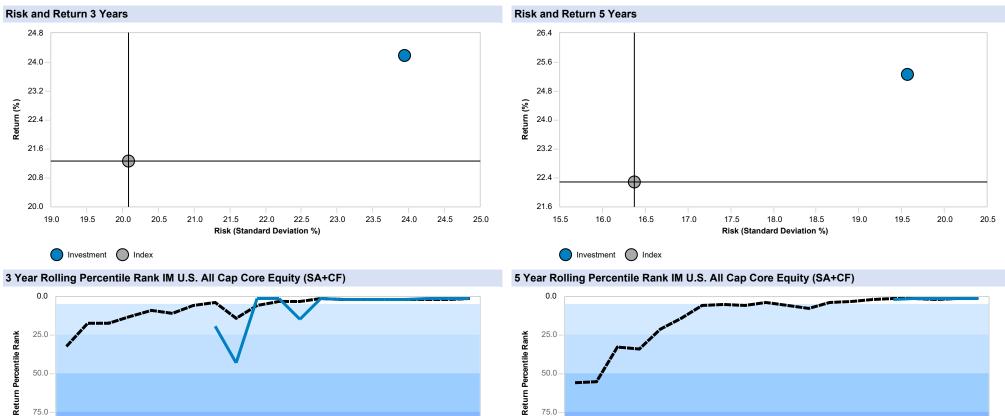




### **Strategy Review** Emerald Advisors All Cap (EMWO) | Russell 3000 Growth Index

As of September 30, 2021

Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	24.18	23.94	0.98	111.72	8	107.87	4	Investment	25.28	19.57	1.20	111.64	16	107.80	4
Index	21.27	20.09	1.00	100.00	10	100.00	2	Index	22.30	16.37	1.25	100.00	18	100.00	2



100.0

Investment

\_\_ Index

12/16

6/17

**Total Period** 

5

20

12/17

6/18

5-25

Count

5 (100%)

16 (80%)

12/18

6/19

25-Median

Count

0 (0%)

2 (10%)

12/19

6/20

0 (0%)

2 (10%)

Median-75

Count

12/20

9/21

75-95

Count

0 (0%)

0 (0%)

12/17

6/18

5-25

Count

12 (92%)

19 (95%)

12/18

6/19

25-Median

Count

1 (8%)

1 (5%)

12/19

6/20

Median-75

Count

0 (0%)

0 (0%)

12/20

9/21

75-95

Count

0 (0%)

0 (0%)

Page 36

100.0

Investment

\_\_ Index

12/16

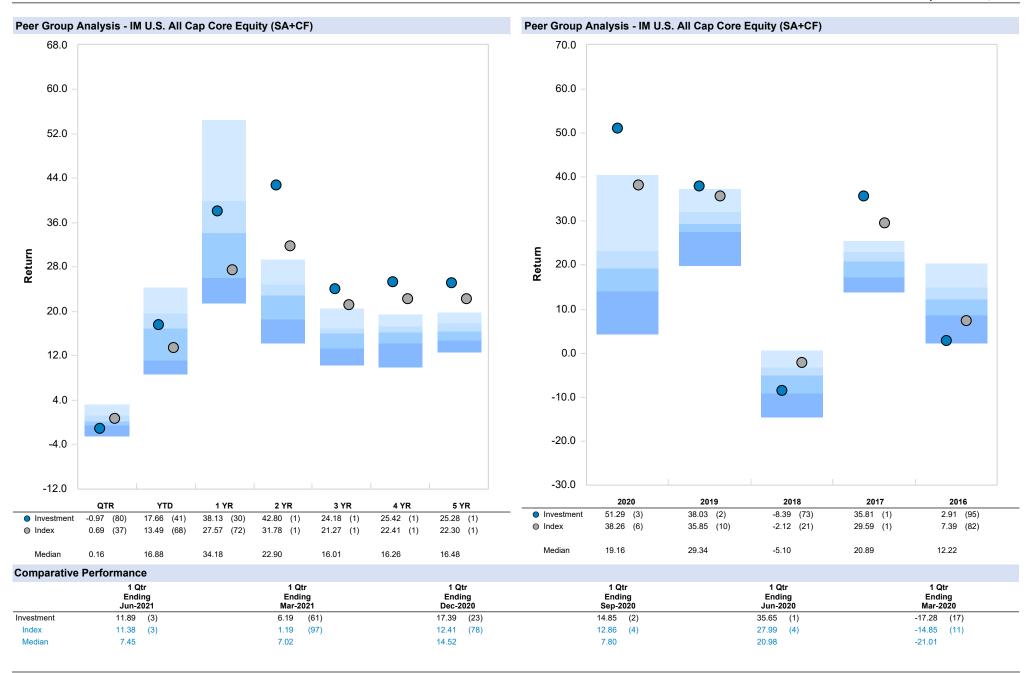
6/17

Total Period

13

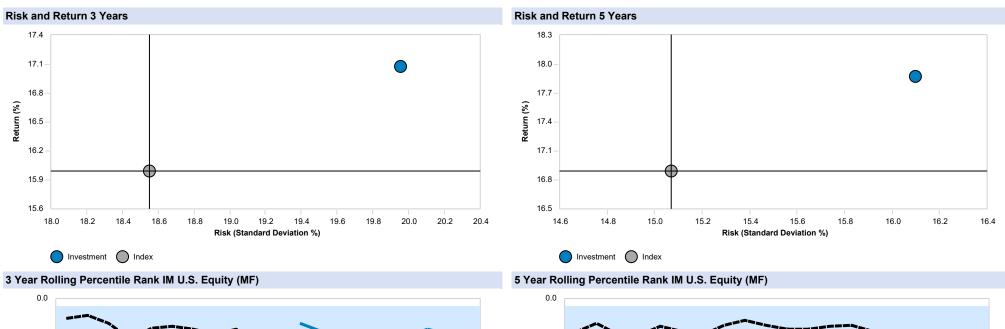
20

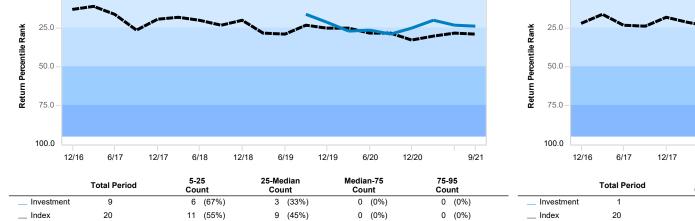
#### Strategy Review Emerald Advisors All Cap (EMWO) | Russell 3000 Growth Index As of September 30, 2021

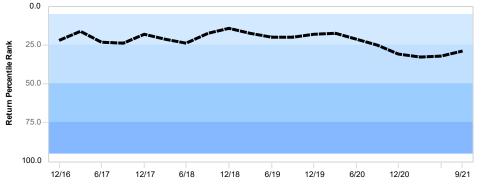




Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	17.08	19.95	0.83	101.44	9	96.22	3	Investment	17.87	16.10	1.03	100.59	17	93.56	3
Index	15.99	18.55	0.83	100.00	10	100.00	2	Index	16.90	15.07	1.04	100.00	17	100.00	3



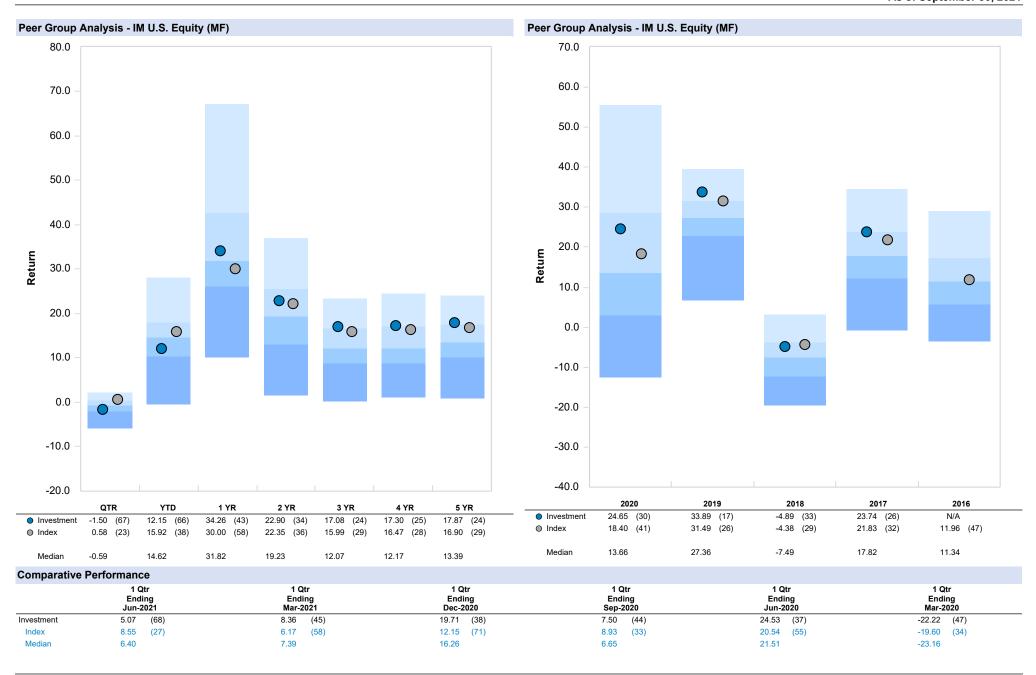




	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count		Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	9	6 (67%)	3 (33%)	0 (0%)	0 (0%)	Investment	1	1 (100%)	0 (0%)	0 (0%)	0 (0%)
Index	20	11 (55%)	9 (45%)	0 (0%)	0 (0%)	Index	20	16 (80%)	4 (20%)	0 (0%)	0 (0%)

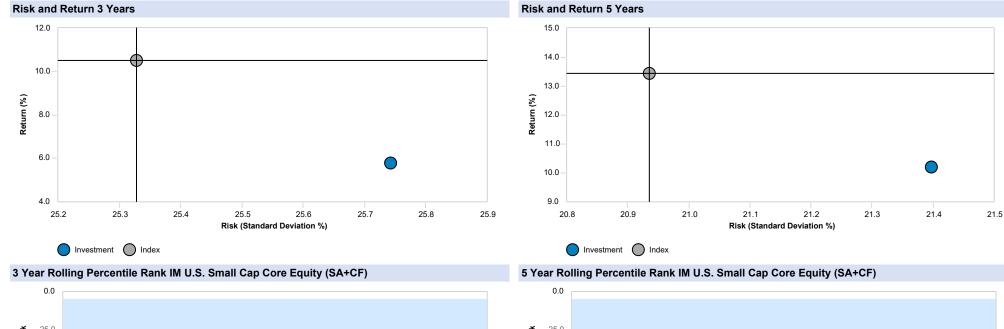


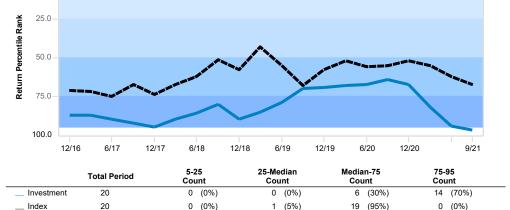
#### Strategy Review Ethos (EMWO) | S&P 500 Index As of September 30, 2021

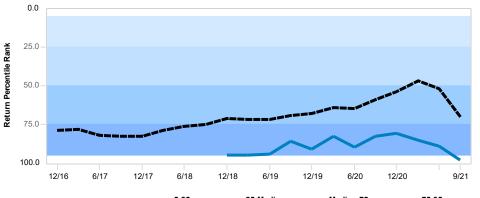




Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.81	25.74	0.31	93.09	9	105.55	3	Investment	10.19	21.40	0.51	95.68	17	107.11	3
Index	10.54	25.33	0.48	100.00	8	100.00	4	Index	13.45	20.94	0.65	100.00	15	100.00	5

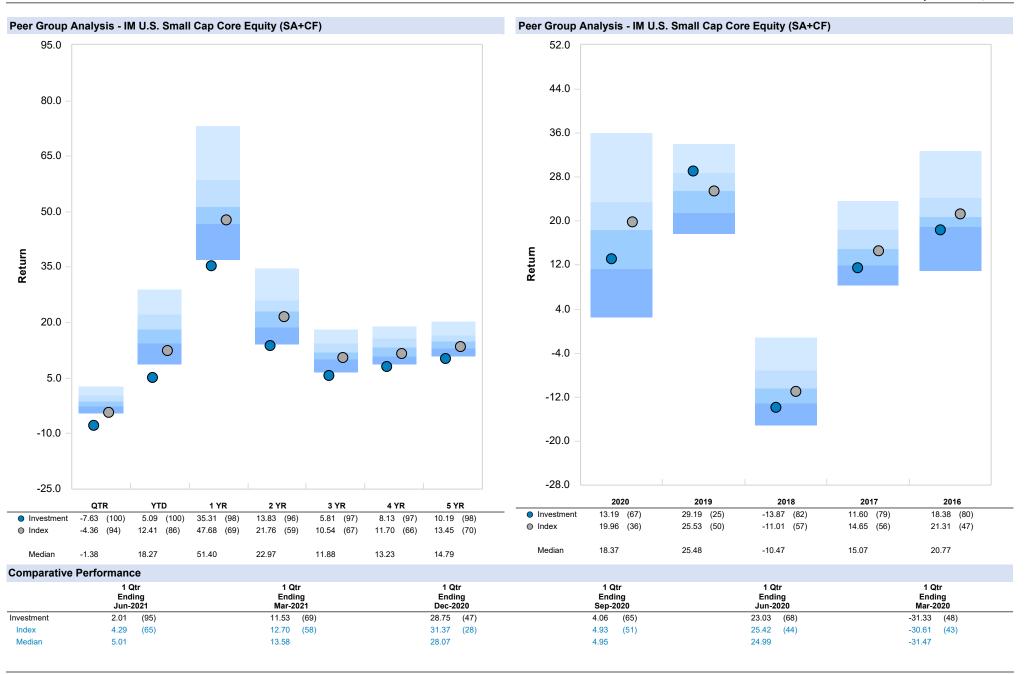






	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count		Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
estment	20	0 (0%)	0 (0%)	6 (30%)	14 (70%)	Investment	12	0 (0%)	0 (0%)	0 (0%)	12 (100%)
ex	20	0 (0%)	1 (5%)	19 (95%)	0 (0%)	Index	20	0 (0%)	1 (5%)	12 (60%)	7 (35%)







Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Investment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Index	16.00	19.40	0.80	100.00	9	100.00	3	Index	16.85	15.69	1.00	100.00	16	100.00	4

#### **Risk and Return 3 Years Risk and Return 5 Years** 16.9 16.0 Return (%) Return (%) 16.8 15.9 16.7 19.4 19.5 15.6 15.7 **Risk (Standard Deviation %)** Risk (Standard Deviation %) Investment Index Investment Index 3 Year Rolling Percentile Rank IM U.S. Equity (SA+CF) 5 Year Rolling Percentile Rank IM U.S. Equity (SA+CF) 0.0 0.0 25.0 25.0 Return Percentile Rank Return Percentile Rank 50.0 50.0

75.0

100.0

Investment

\_\_ Index

12/16

6/17

**Total Period** 

0

20

12/17

6/18

5-25

Count

4 (20%)

0

12/18

6/19

25-Median

Count

16 (80%)

0

12/19

6/20

0 (0%)

Median-75

Count

0

12/20

9/21

75-95

Count

0 (0%)

0

75.0

100.0

Investment

\_\_ Index

12/16

6/17

Total Period

0

20

12/17

6/18

5-25

Count

2 (10%)

0

12/18

6/19

25-Median

Count

18 (90%)

0

12/19

6/20

Median-75

Count

0 (0%)

0

12/20

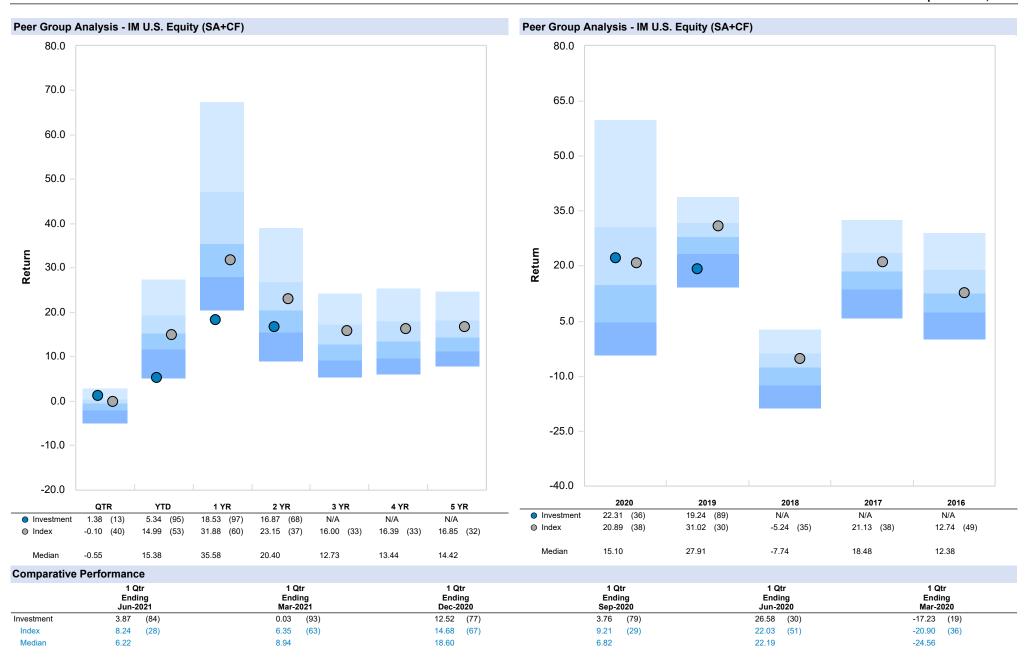
9/21

75-95

Count

0 (0%)

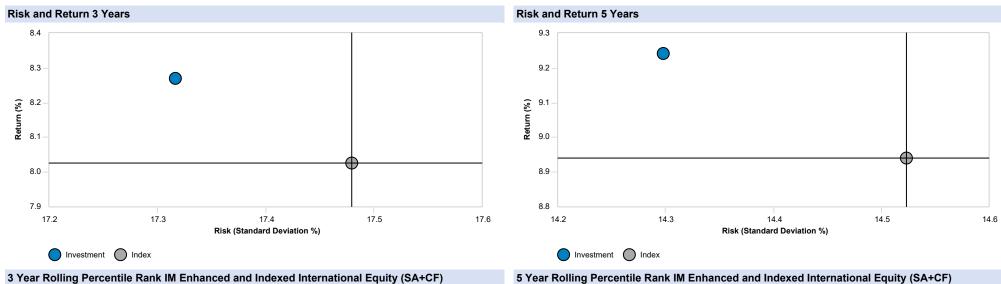
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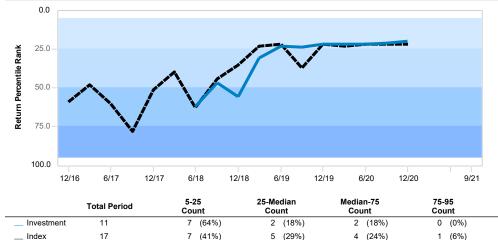




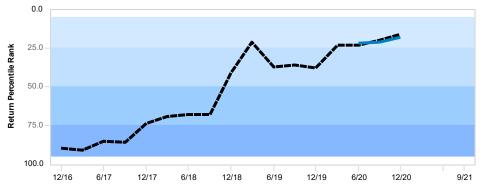
#### **Strategy Review** SSgA ACWI ex US | MSCI AC World ex USA (Net) As of September 30, 2021

Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	8.27	17.32	0.48	99.14	8	97.70	4	Investment	9.24	14.30	0.61	98.55	13	95.94	7
Index	8.03	17.48	0.46	100.00	8	100.00	4	Index	8.94	14.52	0.58	100.00	13	100.00	7





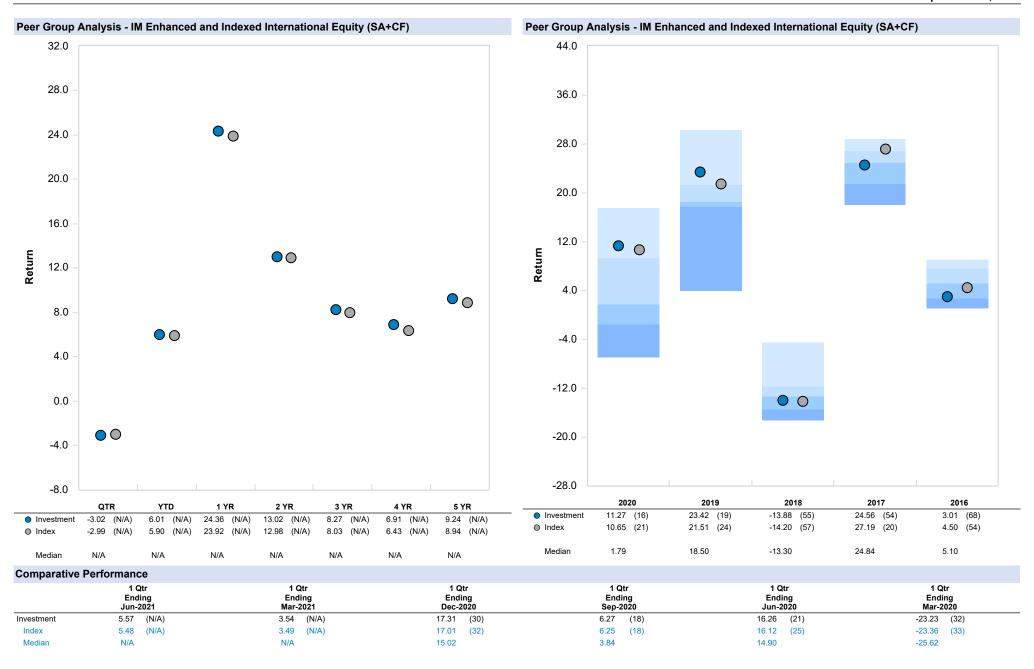
5 Year Rolling Percentile Rank IM Enhanced and Indexed International Equity (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count		Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	11	7 (64%)	2 (18%)	2 (18%)	0 (0%)	Investment	3	3 (100%)	0 (0%)	0 (0%)	0 (0%)
Index	17	7 (41%)	5 (29%)	4 (24%)	1 (6%)	Index	17	5 (29%)	4 (24%)	4 (24%)	4 (24%)



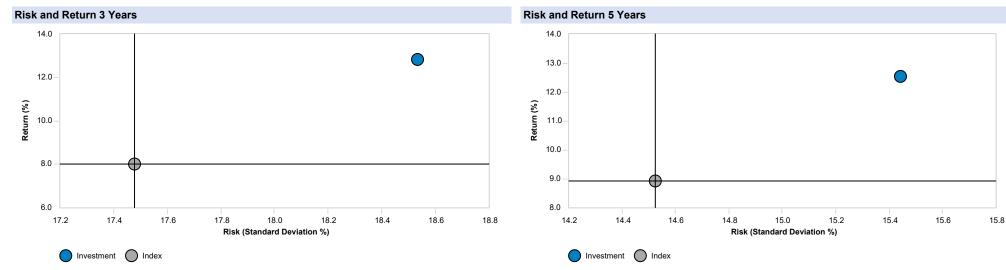
#### Strategy Review SSgA ACWI ex US | MSCI AC World ex USA (Net) As of September 30, 2021

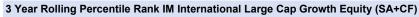


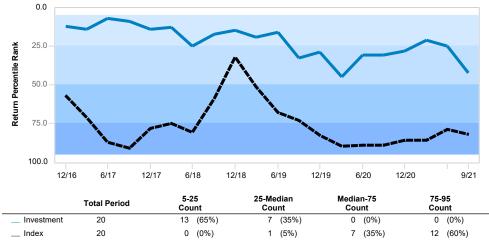


#### Strategy Review Baillie Gifford Intl Equity | MSCI AC World ex USA (Net) As of September 30, 2021

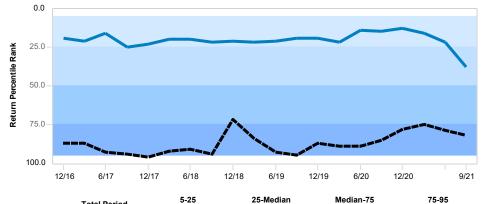
Historical Statistic	s 3 Years							Historical Statis	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	12.83	18.53	0.68	114.79	8	98.10	4	Investment	12.56	15.44	0.77	111.08	13	95.10	7
Index	8.03	17.48	0.46	100.00	8	100.00	4	Index	8.94	14.52	0.58	100.00	13	100.00	7







5 Year Rolling Percentile Rank IM International Large Cap Growth Equity (SA+CF)

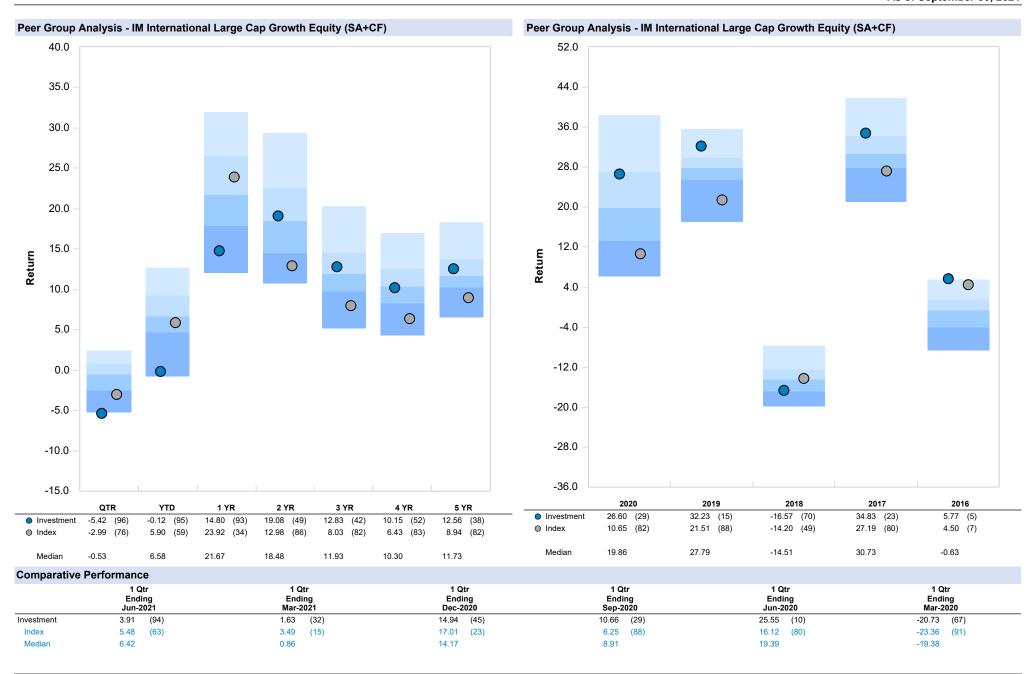


Total Period	Count	Count	Count	Count		Total Period	Count	Count	Count	Count
20	13 (65%)	7 (35%)	0 (0%)	0 (0%)	Investment	20	19 (95%)	1 (5%)	0 (0%)	0 (0%)
20	0 (0%)	1 (5%)	7 (35%)	12 (60%)	Index	20	0 (0%)	0 (0%)	2 (10%)	18 (90%)



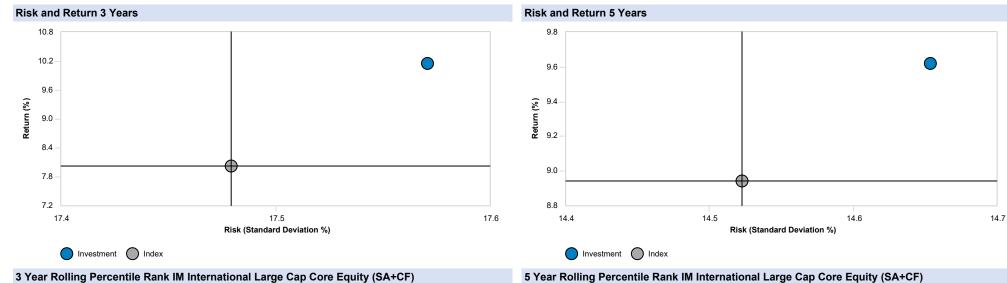
Page 46

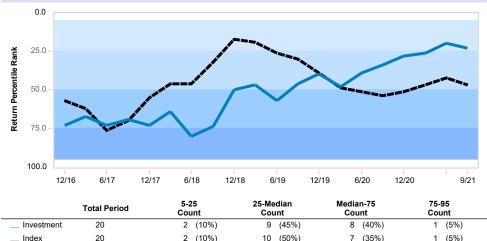
#### Strategy Review Baillie Gifford Intl Equity | MSCI AC World ex USA (Net) As of September 30, 2021



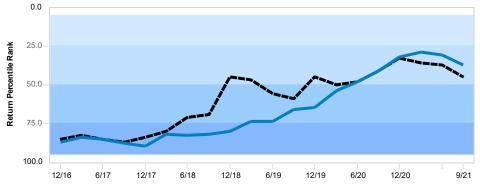


Historical Statistic	s 3 Years							Historical Statis	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	10.16	17.57	0.57	104.02	8	95.60	4	Investment	9.62	14.65	0.62	101.31	13	97.79	7
Index	8.03	17.48	0.46	100.00	8	100.00	4	Index	8.94	14.52	0.58	100.00	13	100.00	7





5 Year Rolling Percentile Rank IM International Large Cap Core Equity (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count		Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	2 (10%)	9 (45%)	8 (40%)	1 (5%)	Investment	20	0 (0%)	6 (30%)	5 (25%)	9 (45%)
Index	20	2 (10%)	10 (50%)	7 (35%)	1 (5%)	Index	20	0 (0%)	10 (50%)	4 (20%)	6 (30%)



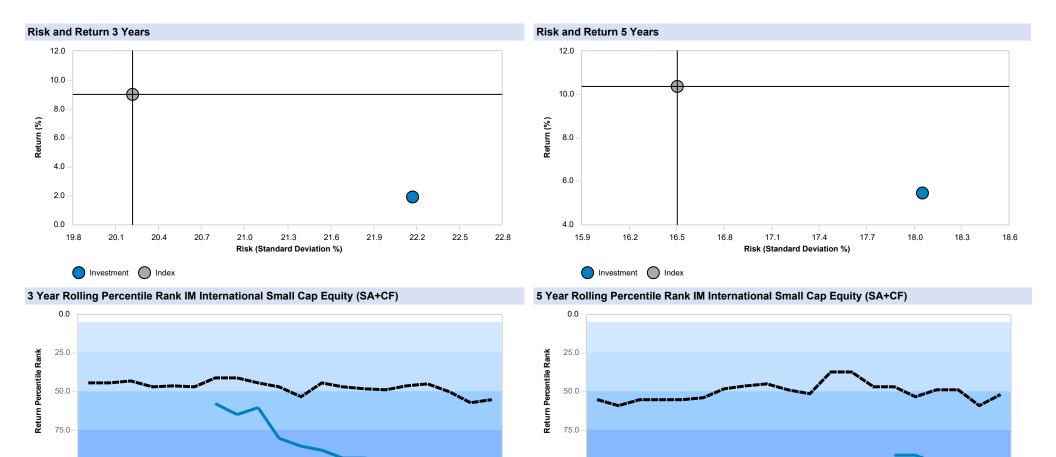
#### Strategy Review FIAM Select International Equity | FIAM Policy Index As of September 30, 2021





#### Strategy Review Segall, Bryant & Hamill | MSCI EAFE Small Cap (net) Index As of September 30, 2021

Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	1.95	22.18	0.15	95.60	7	122.30	5	Investment	5.48	18.05	0.33	96.25	12	120.27	8
Index	9.05	20.22	0.47	100.00	9	100.00	3	Index	10.38	16.50	0.61	100.00	14	100.00	6



100.0	/16 6/17	12/17	6/18	12/18	6/19	12/19	6/20	12/20	1	9/21	100.0	12/16	6/17	12/17	6/18	12/18	6/19	12/19	6/20	12/20	9/21
	Total Period		5-25 Count		25-Median Count		Median-75 Count		75-95 Count			т	otal Period		5-25 Count		25-Median Count	I	Median-75 Count		75-95 Count
Investment	14		0 (0%)		0 (0%)		3 (21%)		11 (79	9%)	Investm	ent	6		0 (0%)		0 (0%)		0 (0%)		6 (100%)
_ Index	20		0 (0%)		17 (85%)		3 (15%)		0 (09	%)	Index		20		0 (0%)		10 (50%)	)	10 (50%)		0 (0%)

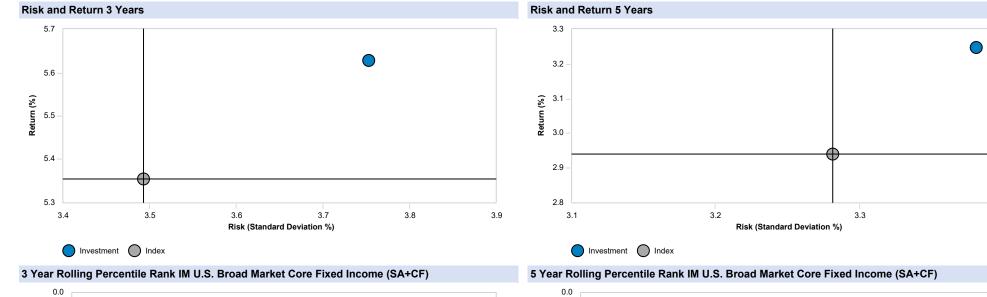


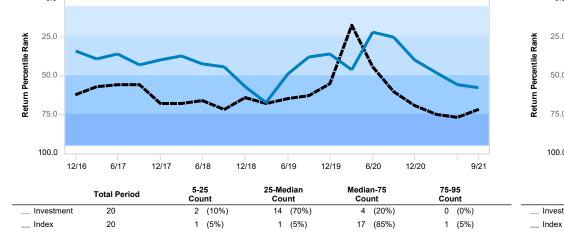
#### Strategy Review Segall, Bryant & Hamill | MSCI EAFE Small Cap (net) Index As of September 30, 2021





Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.63	3.75	1.18	106.53	10	109.38	2	Investment	3.25	3.38	0.63	104.06	15	98.14	5
Index	5.35	3.49	1.21	100.00	11	100.00	1	Index	2.94	3.28	0.56	100.00	16	100.00	4





0.0 25.0 50.0 75.0 100.0 12/16 6/17 12/17 6/18 12/18 6/19 12/19 6/20 12/20 9/21 5-25 25-Median Median-75 75-95

Count

16 (80%)

1 (5%)

Count

4 (20%)

15 (75%)

**Total Period** 

20

20

Investment

Count

0 (0%)

0 (0%)



Count

0 (0%)

4 (20%)

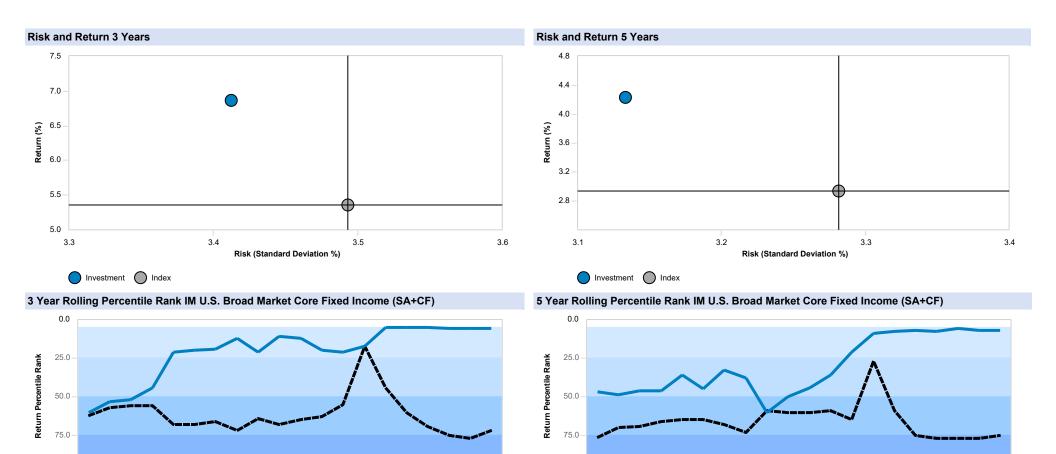
3.4





#### Strategy Review Federated Core Broad | BImbg. U.S. Aggregate Index As of September 30, 2021

Historical Statistic	s 3 Years							Historical Statis	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	6.87	3.41	1.64	110.49	11	76.94	1	Investment	4.24	3.13	0.98	108.66	16	76.31	4
Index	5.35	3.49	1.21	100.00	11	100.00	1	Index	2.94	3.28	0.56	100.00	16	100.00	4



100.0

Investment

\_\_ Index

12/16

6/17

**Total Period** 

20

20

12/17

6/18

5-25

Count

8 (40%)

0 (0%)

12/18

6/19

25-Median

Count

11 (55%)

1 (5%)

12/19

6/20

1 (5%)

15 (75%)

Median-75

Count

12/20

# 88

9/21

75-95

Count

0 (0%)

4 (20%)

Page 54

100.0

Investment

\_\_ Index

12/16

6/17

**Total Period** 

20

20

12/17

6/18

5-25

Count

16 (80%)

1 (5%)

12/18

6/19

25-Median

Count

1 (5%)

1 (5%)

12/19

6/20

Median-75

Count

3 (15%)

17 (85%)

12/20

9/21

75-95

Count

0 (0%)

1 (5%)

#### Strategy Review Federated Core Broad | BImbg. U.S. Aggregate Index As of September 30, 2021

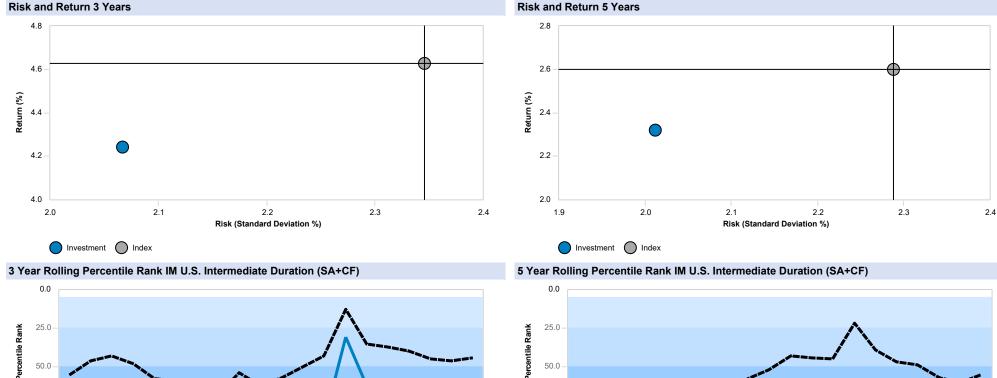


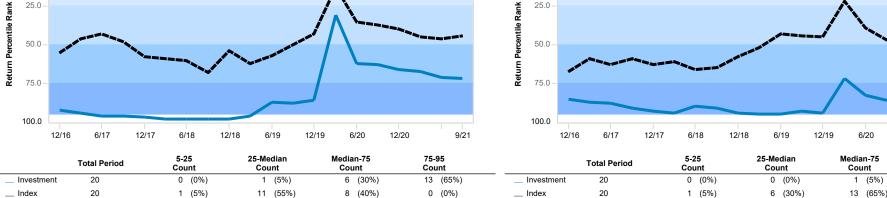


## CIM Investment Mgmt | Bloomberg Intermediate US Govt/Credit Idx

As of September 30, 2021

Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.24	2.07	1.54	87.77	10	74.53	2	Investment	2.32	2.01	0.61	86.18	15	82.07	5
Index	4.63	2.35	1.49	100.00	11	100.00	1	Index	2.60	2.29	0.65	100.00	16	100.00	4







9/21

75-95

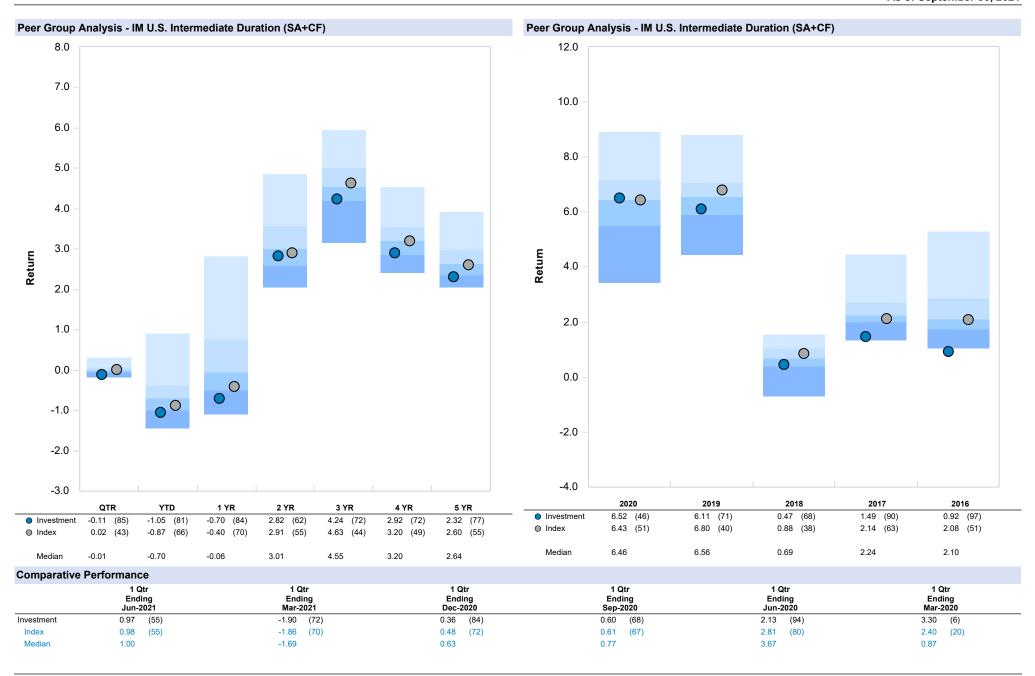
Count

19 (95%)

0 (0%)

12/20

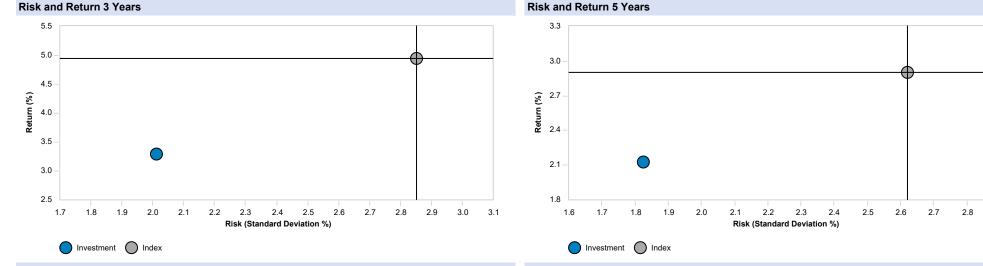
#### Strategy Review CIM Investment Mgmt | Bloomberg Intermediate US Govt/Credit Idx As of September 30, 2021

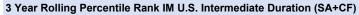


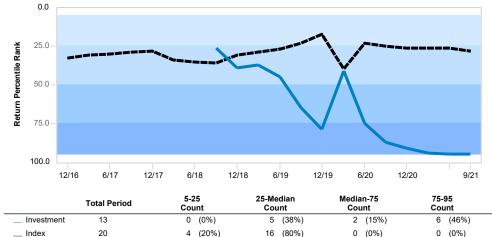


#### Strategy Review StoneRidge Partners (EMWO) | StoneRidge Policy Index As of September 30, 2021

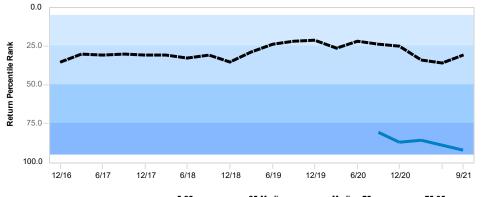
Historical Statistic	s 3 Years							Historical Statis	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.29	2.01	1.10	68.00	9	71.02	3	Investment	2.13	1.83	0.56	70.49	15	66.89	5
Index	4.95	2.85	1.30	100.00	11	100.00	1	Index	2.91	2.62	0.67	100.00	15	100.00	5







5 Year Rolling Percentile Rank IM U.S. Intermediate Duration (SA+CF)

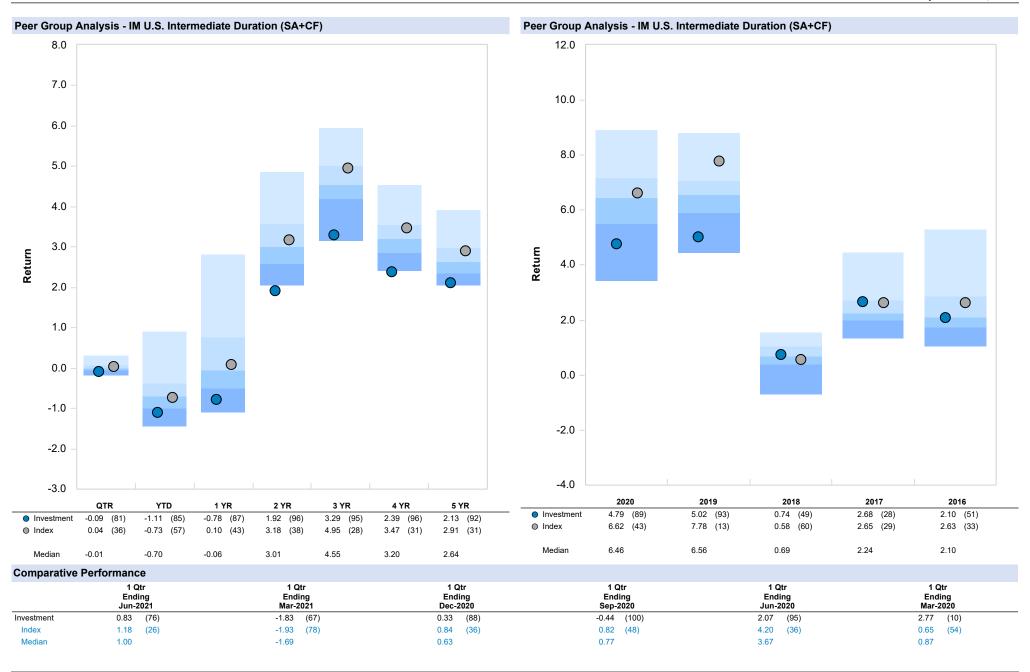


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count		Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	13	0 (0%)	5 (38%)	2 (15%)	6 (46%)	Investment	5	0 (0%)	0 (0%)	0 (0%)	5 (100%)
Index	20	4 (20%)	16 (80%)	0 (0%)	0 (0%)	Index	20	6 (30%)	14 (70%)	0 (0%)	0 (0%)



2.9

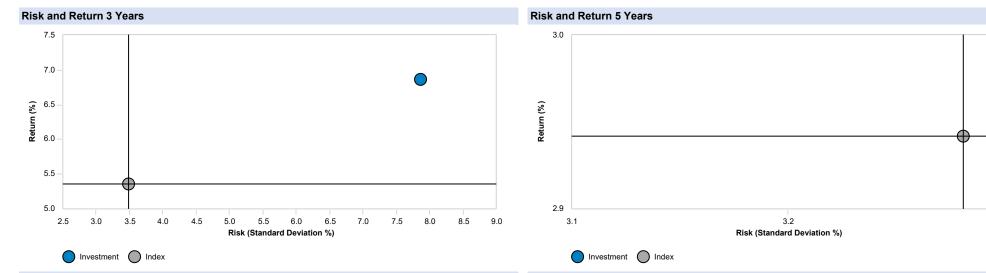
#### Strategy Review StoneRidge Partners (EMWO) | StoneRidge Policy Index As of September 30, 2021

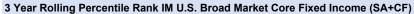


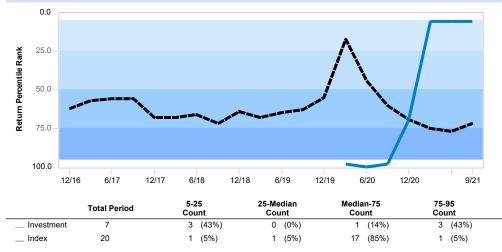


#### **Strategy Review** Gridiron Capital Fixed Income (EMWO) | Blmbg. U.S. Aggregate Index As of September 30, 2021

Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	6.87	7.87	0.73	120.78	9	98.31	3	Investment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Index	5.35	3.49	1.21	100.00	11	100.00	1	Index	2.94	3.28	0.56	100.00	16	100.00	4







5 Year Rolling Percentile Rank IM U.S. Broad Market Core Fixed Income (SA+CF)

Count

0 (0%)

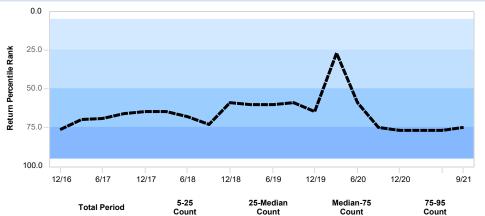
0

0

20

Investment

\_\_ Index



Count

1 (5%)

0

Count

15 (75%)

0

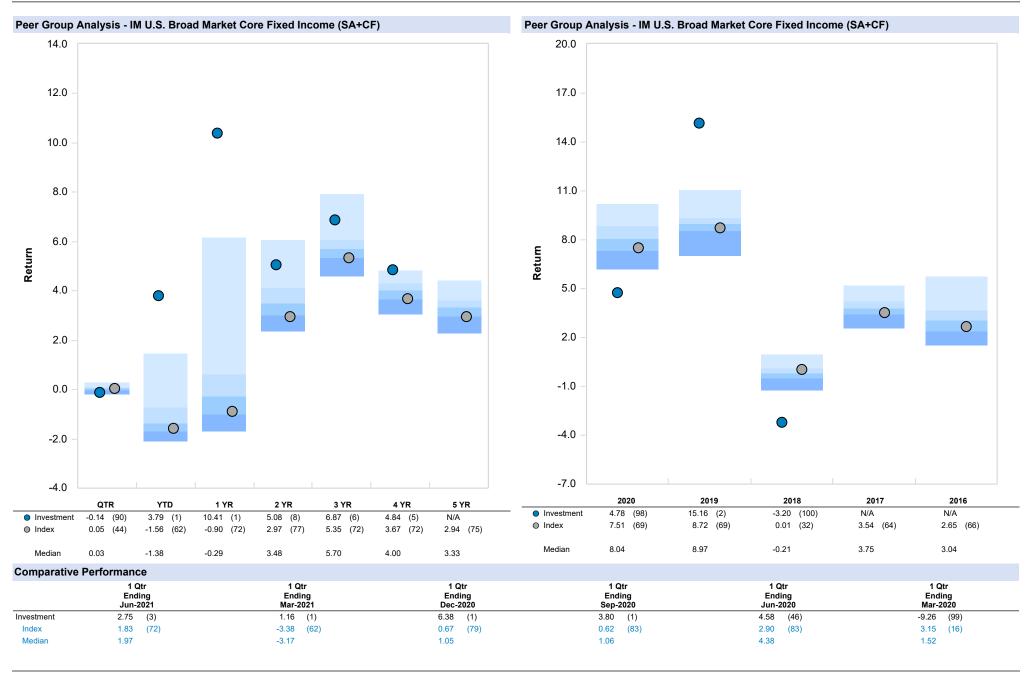
0

4 (20%)

3.3

Page 60

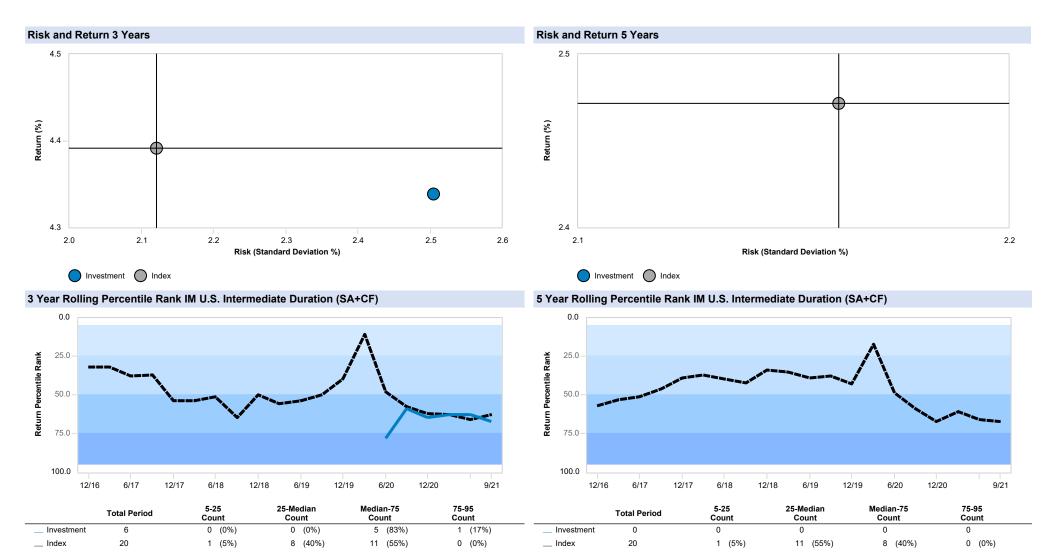
#### Strategy Review Gridiron Capital Fixed Income (EMWO) | BImbg. U.S. Aggregate Index As of September 30, 2021





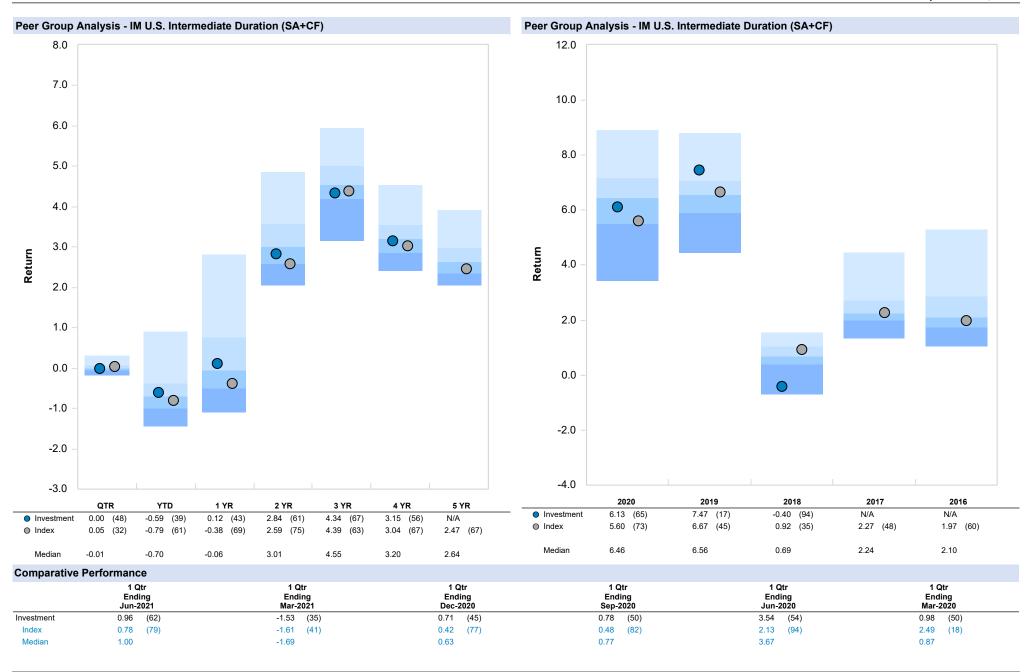
#### Strategy Review FNB (EMWO) | Bloomberg Intermed Aggregate Index As of September 30, 2021

Historical Statistic	s 3 Years							Historical Statis	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.34	2.50	1.25	107.60	10	142.39	2	Investment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Index	4.39	2.12	1.57	100.00	11	100.00	1	Index	2.47	2.16	0.63	100.00	16	100.00	4





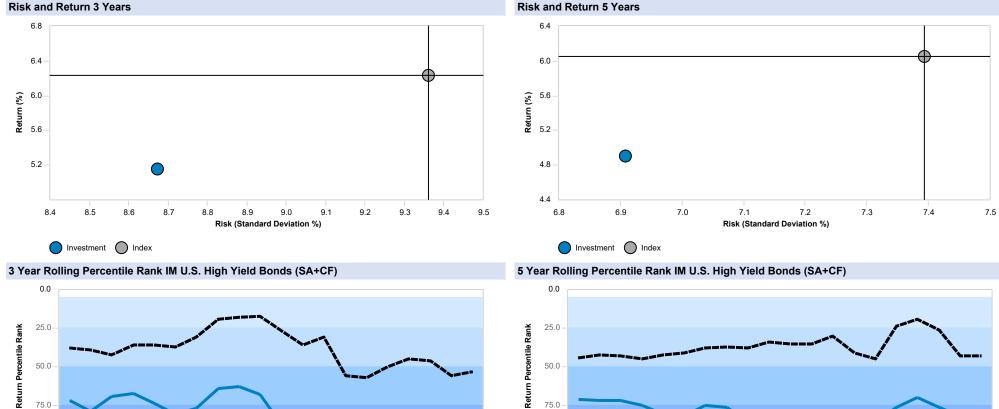
#### Strategy Review FNB (EMWO) | Bloomberg Intermed Aggregate Index As of September 30, 2021





#### **Strategy Review** Oaktree High Yield | FTSE High Yield Market Capped Index As of September 30, 2021

Historical Statistic	s 3 Years							Historical Stati	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.16	8.67	0.48	89.57	10	95.63	2	Investment	4.90	6.91	0.55	89.90	17	101.07	3
Index	6.24	9.36	0.56	100.00	10	100.00	2	Index	6.05	7.39	0.67	100.00	17	100.00	3



75.0 75.0 100.0 100.0 12/16 6/17 12/17 6/18 12/18 6/19 12/19 6/20 12/20 9/21 12/16 6/17 12/17 6/18 12/18 6/19 12/19 6/20 12/20 9/21 5-25 25-Median Median-75 75-95 5-25 25-Median Median-75 75-95 Total Period Total Period Count Count Count Count Count Count Count Count 7 (35%) 14 (70%) 20 0 (0%) 0 (0%) 13 (65%) 20 0 (0%) 0 (0%) 6 (30%) Investment Investment 20 20 3 (15%) 13 (65%) 4 (20%) 0 (0%) 18 (90%) 0 (0%) 0 (0%) \_\_ Index \_\_ Index 2 (10%)



Page 64

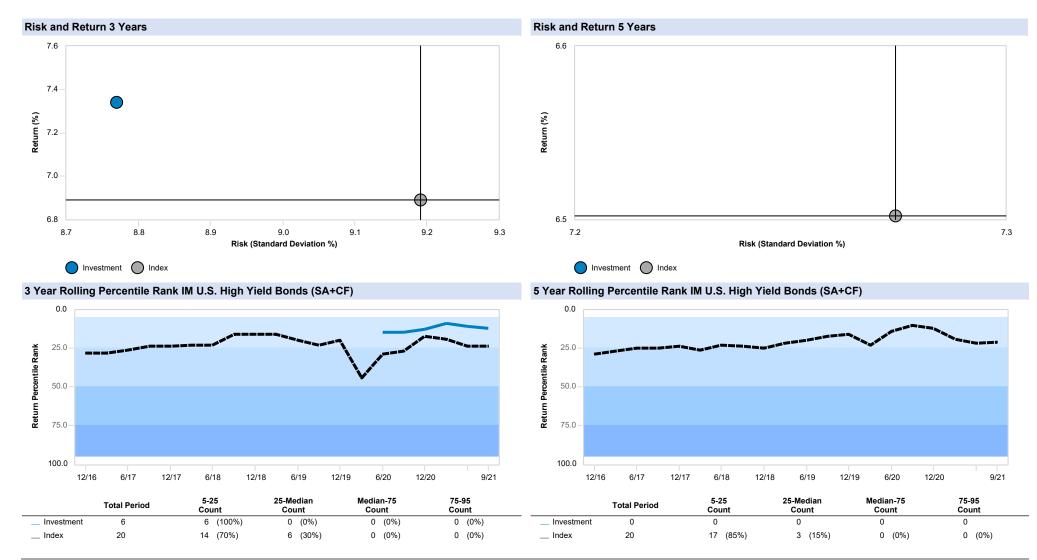
#### Strategy Review Oaktree High Yield | FTSE High Yield Market Capped Index As of September 30, 2021





#### Strategy Review Federated High Yield | BImbg. U.S. High Yield - 2% Issuer Cap As of September 30, 2021

Historical Statistic	s 3 Years							Historical Statis	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	7.34	8.77	0.71	100.43	10	95.09	2	Investment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Index	6.89	9.19	0.64	100.00	10	100.00	2	Index	6.50	7.27	0.74	100.00	17	100.00	3



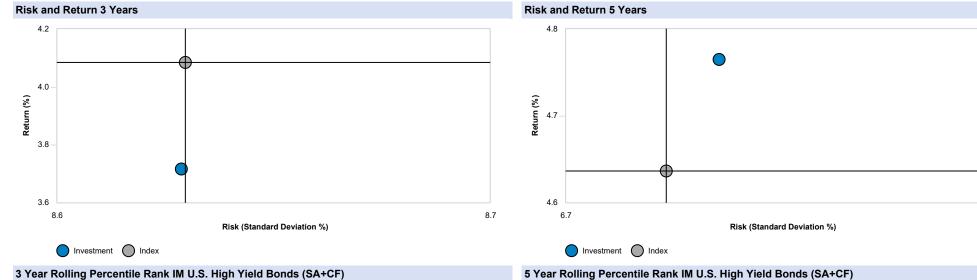


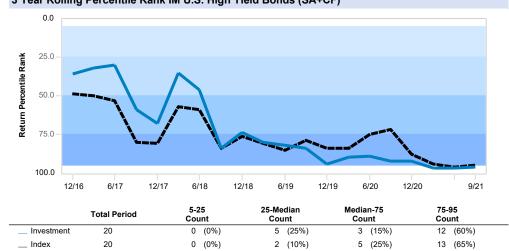
#### Strategy Review Federated High Yield | BImbg. U.S. High Yield - 2% Issuer Cap As of September 30, 2021





Historical Statistics 3 Years								Historical Statistics 5 Years								
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters	
Investment	3.72	8.63	0.33	94.67	9	96.69	3	Investment	4.76	6.74	0.55	97.94	17	91.87	3	
Index	4.09	8.63	0.37	100.00	10	100.00	2	Index	4.64	6.72	0.53	100.00	18	100.00	2	

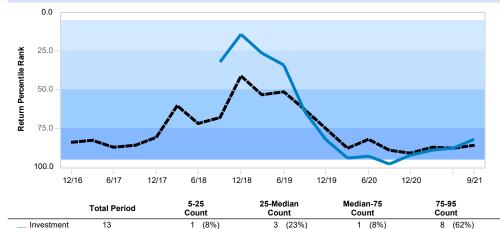




5 Year Rolling Percentile Rank IM U.S. High Yield Bonds (SA+CF)

20

\_\_ Index



1 (5%)

0 (0%)



7 (35%)

12 (60%)

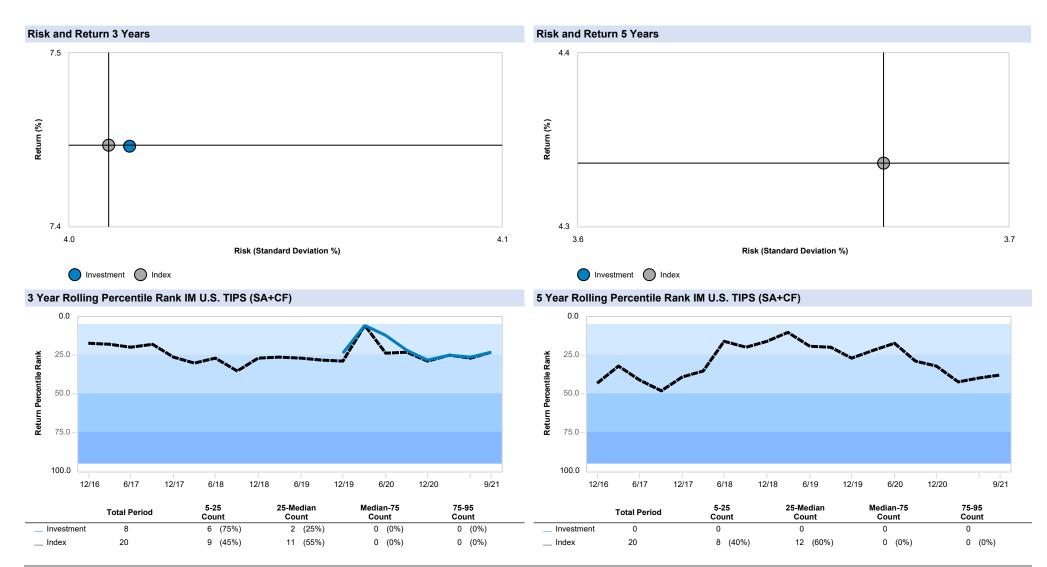
6.8

#### Strategy Review Sound Point | Credit Suisse Leveraged Loan Index As of September 30, 2021





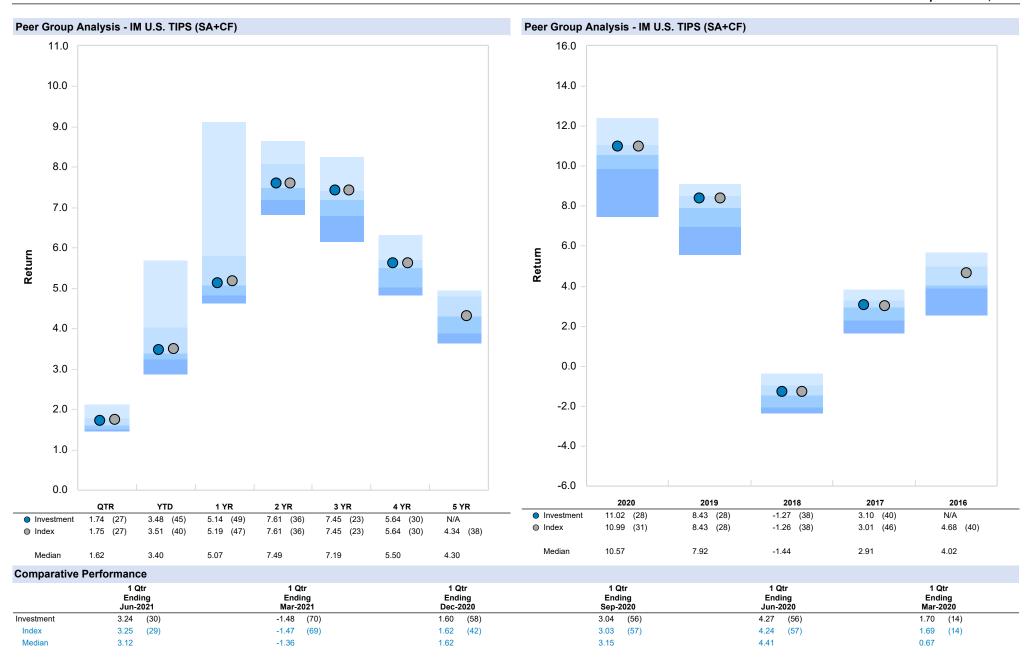
Historical Statistics 3 Years								Historical Statistics 5 Years								
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters	
Investment	7.45	4.01	1.51	99.98	10	99.96	2	Investment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Index	7.45	4.01	1.51	100.00	10	100.00	2	Index	4.34	3.67	0.86	100.00	14	100.00	6	





Page 70

#### Strategy Review MCM TIPS | Bloomberg U.S. TIPS Index As of September 30, 2021

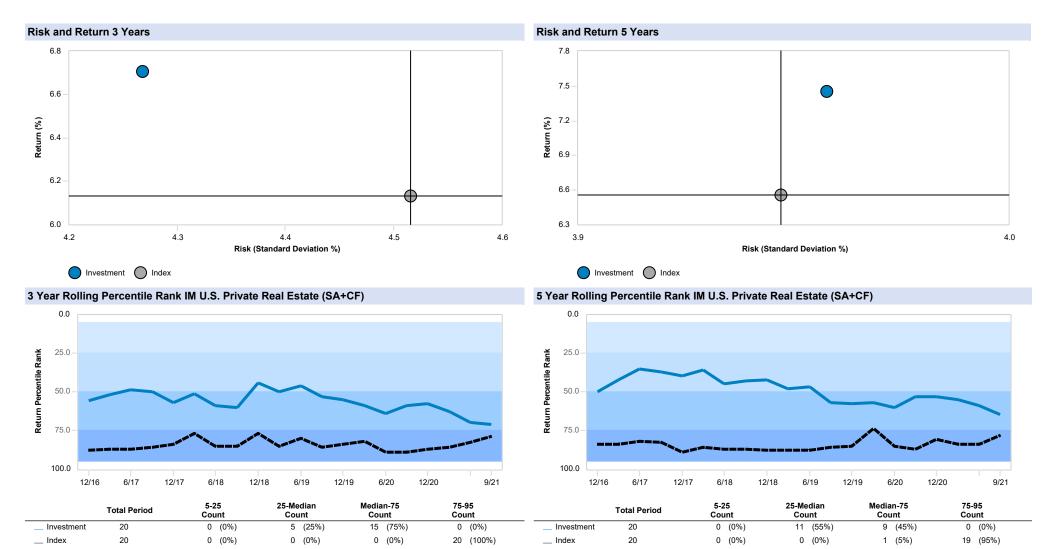




# **Strategy Review** Morgan Stanley Prime Property Fund | NCREIF Fund Index-ODCE (VW) (Net)

As of September 30, 2021

Historical Statistic	cs 3 Years							Historical Statis	stics 5 Years						
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	6.71	4.27	1.26	108.54	11	105.82	1	Investment	7.46	3.96	1.55	112.72	19	105.82	1
Index	6.13	4.52	1.07	100.00	11	100.00	1	Index	6.56	3.95	1.33	100.00	19	100.00	1





Page 72

## Strategy Review Morgan Stanley Prime Property Fund | NCREIF Fund Index-ODCE (VW) (Net) As of September 30, 2021





Private	Equity	Summary of	f Partnership
---------	--------	------------	---------------

Partnerships	Vintage Year	Capital Commitment \$	Market Value \$
Fotal Private Equity w Life Settlement Composite		324,900,410	220,323,918
Accolade Partners V	2015	3,000,000	6,761,927
Accolade Partners VI	2018	3,000,000	3,196,388
Adams Street 2003 U.S Fund	2003	13,733,000	1,233,453
Adams Street 2008 Global	2008	10,000,000	6,463,637
Adams Street 2009 Global	2009	5,000,000	4,049,541
Auldbrass Spec Opps II	2018	4,000,000	3,873,843
Birchmere Ventures IV	2012	525,000	349,597
BlackRock Multi-Alternative Opps	2016	3,000,000	1,875,047
Blackstone Tac Op I	2012	2,000,000	443,393
Blackstone Tac Op II	2015	3,000,000	1,241,327
Blackstone Tac Op III	2019	5,000,000	2,830,460
CCA Black	2015	7,500,000	7,790,822
CCA Blue	2013	3,800,000	1,954,351
CCA Green	2009	15,000,000	-
CCA Longevity Fund VI LP	2019	5,000,000	4,427,649
Commonfund Venture Partners XII	2018	3,000,000	3,532,949
Constitution Ironsides Direct Investment Fund IV	2016	3,000,000	2,775,331
Constitution Ironsides Opportunities Fund	2018	4,000,000	3,233,166
Constitution Ironsides Partnership Fund II	2011	6,000,000	25,422
Constitution Ironsides Partnership Fund III	2014	8,000,000	5,861,603
Crestline Opportunity Fund III	2016	4,000,000	2,930,348
Crestline Recovery II	2011	3,000,000	343,307
DCM Fund IV	2015	3,000,000	3,027,585
Draper Triangle II	2005	10,000,000	54,289
Draper Triangle III	2013	13,500,000	15,549,760
Emerald Advisors Fin Srv I	2018	2,000,000	1,771,345
Entrust Special Opportunities Fund III	2015	3,000,000	1,761,215
Entrust Special Opportunities Fund IV	2018	3,000,000	3,610,828
Farol Fund II	2020	4,000,000	3,367,601
Five Points III	2017	3,000,000	2,835,056
Glouston Private Equity Opportunities IV	2011	3,000,000	427,621
Goldman Sachs Private Equity Partners 2004	2005	10,000,000	439,148
Greenspring Early Stage I LP	2018	4,000,000	3,844,730
Greenspring Opportunities II-A	2013	3,000,000	1,931,557
Greenspring Opportunities III	2014	3,000,000	4,013,774
Greenspring Opportunities IV	2015	3,000,000	6,854,224
Greenspring Opportunities V	2018	3,000,000	4,979,601
Greenspring Secondaries I	2014	1,000,000	1,044,783
Greenspring Secondaries II	2016	2,000,000	1,476,432

Data Sources: Market Values - BNY Mellon and Investment Managers Commitments - Asset Strategies



Private Equity Summary of Partnership Total Private Equity w Life Settlement Composite As of September 30, 2021

artnerships	Vintage Year	Capital Commitment \$	Market Value \$
iNetworks INOF II	2013	-	6,291,029
iNetworks Opportunity Fund	2013	11,000,000	14,617,631
iNetworks Opportunity Fund II	2020	12,500,000	6,556,687
JMI Equity Fund IX-A	2019	3,000,000	3,555,637
Mellon PAM Fund V	2005	10,000,000	287,787
Mesirow Partners Fund IV	2006	17,000,000	5,719,867
North Haven Capital Partners VI	2015	3,000,000	2,329,865
North Haven Senior Loan Fund	2018	4,000,000	2,037,808
Pharos Capital Partners III	2013	3,000,000	3,976,195
PLSG Accelerator Fund	2011	250,000	85,657
ValStone Partners IV	2008	20,000,000	1
ValStone Partners V	2013	20,000,000	20,853,624
ValStone Partners VI	2017	20,000,000	17,683,753
Valstone Senior Living	2018	13,092,410	14,145,268

Historical Hybrid	Composition
-------------------	-------------

Allocation Mandate	Weight (%)
Jan-1979	
Russell 3000 Index	65.00
Blmbg. U.S. Aggregate Index	35.00

#### Mar-2007

FT Wilshire 5000 Total Market TR Index	45.00
MSCI EAFE (Net) Index	10.00
Blmbg. U.S. Aggregate Index	25.00
Bloomberg Commodity Index Total Return	5.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	5.00
Private Equity Composite	5.00
90 Day U.S. Treasury Bill	5.00

### Sep-2008

FT Wilshire 5000 Total Market TR Index	45.00
MSCI AC World ex USA (Net)	10.00
Blmbg. U.S. Aggregate Index	25.00
Bloomberg Commodity Index Total Return	5.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	5.00
Private Equity Composite	5.00
90 Day U.S. Treasury Bill	5.00

### Dec-2008

FT Wilshire 5000 Total Market TR Index	35.00
MSCI AC World ex USA (Net)	15.00
Blmbg. U.S. Aggregate Index	20.00
FTSE High Yield Market Capped Index	5.00
Bloomberg U.S. TIPS Index	5.00
Bloomberg Commodity Index Total Return	5.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	7.50
Private Equity Composite	5.00
90 Day U.S. Treasury Bill	2.50

#### Sep-2009

FT Wilshire 5000 Total Market TR Index	30.00
MSCI AC World ex USA (Net)	20.00
Blmbg. U.S. Aggregate Index	15.00
FTSE High Yield Market Capped Index	10.00
Bloomberg U.S. TIPS Index	7.50
Bloomberg Commodity Index Total Return	2.50
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	10.00
Private Equity Composite	5.00

Allocation Mandate	Weight (%)
Jun-2010	
FT Wilshire 5000 Total Market TR Index	20.00
MSCI AC World ex USA (Net)	25.00
Blmbg. U.S. Aggregate Index	14.00
FTSE High Yield Market Capped Index	10.00
Bloomberg U.S. TIPS Index	6.00
Bloomberg Commodity Index Total Return	5.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	10.00
Private Equity Composite	10.00
Mar-2013	
FT Wilshire 5000 Total Market TR Index	16.10
MSCI AC World ex USA (Net)	18.90
Blmbg. U.S. Aggregate Index	10.00
FTSE High Yield Market Capped Index	12.00
Bloomberg U.S. TIPS Index	5.00
Bloomberg Commodity Index Total Return	8.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	10.00
Private Equity Composite	20.00
Apr-2016	
FT Wilshire 5000 Total Market TR Index	15.00
MSCI AC World ex USA (Net)	15.00
Blmbg. U.S. Aggregate Index	10.00
FTSE High Yield Market Capped Index	12.00
Bloomberg U.S. TIPS Index	8.00
Bloomberg Commodity Index Total Return	2.50
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	10.00
Private Equity Composite	22.50
Alerian MLP Index	5.00
Jan-2019	
FT Wilshire 5000 Total Market TR Index	16.50
MSCI AC World ex USA (Net)	16.50
Blmbg. U.S. Aggregate Index	12.50
FTSE High Yield Market Capped Index	12.00
Bloomberg U.S. TIPS Index	5.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	12.50
Private Equity Composite	20.00
Alerian MLP Index	5.00



Allocation Mandate	Weight (%)
Mar-2021	
Russell 3000 Index	16.50
MSCI AC World ex USA (Net)	16.50
Blmbg. U.S. Aggregate Index	12.50
FTSE High Yield Market Capped Index	12.00
Bloomberg U.S. TIPS Index	5.00
NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net) Monthly	12.50
Liquid Policy Benchmark	5.00
Total Private Equity w Life Settlement Composite	20.00



Historical Hybrid Composition	
Allocation Mandate	Weight (%)
Nov-1993 FT Wilshire 5000 Total Market TR Index	100.00
Mar-2021 Russell 3000 Index	100.00



Historical Hybrid Composition		
Allocation Mandate	Weight (%)	
Dec-2000	100.00	
MSCI EAFE (Net) Index	100.00	
Sep-2008 MSCI AC World ex USA (Net)	100.00	
	100.00	
Mar-2015	400.00	
MSCI AC World ex USA IMI (Net)	100.00	
Mar-2021	400.00	
MSCI AC World ex USA (Net)	100.00	



Historical Hybrid Composition		
Allocation Mandate	Weight (%)	
Nar-2021		
S&P 500 Index	30.00	
S&P MidCap 400 Index	2.00	
S&P SmallCap 600 Index	10.50	
MSCI EAFE IMI (Net)	16.90	
MSCI Emerging Markets IMI (Net)	6.10	
Blmbg. U.S. Aggregate Index	25.00	
CE BofAML 1-3 Year Treasury	4.50	
TSE NAREIT Equity REIT Index	5.00	



## Allegheny County Fee Analysis

As of September 30, 2021

				······································
	Estimated Annual Fee (%)	Market Value (\$)	Estimated Annual Fee (\$)	Fee Schedule
Domestic Equity				
SSgA S&P 500 Index	0.02	98,897,469	19,779	0.02 % of Assets
Fragasso Large Core (EMWO)	0.61	6,777,074	41,010	1.00 % of First \$0 M 0.95 % of Next \$0 M 0.75 % of Next \$1 M 0.65 % of Next \$2 M 0.55 % of Next \$3 M 0.50 % of Next \$3 M 0.25 % of Next \$3 M 0.25 % of Next \$3 M
Twin Capital Enhanced Equity	0.35	38,800,465	135,802	0.35 % of Assets
Earnest Small Value	0.91	16,004,954	145,037	1.00 % of First \$10 M 0.75 % of Next \$15 M 0.60 % of Next \$25 M 0.50 % Thereafter
Emerald Advisors Small Cap	0.73	15,892,394	115,354	1.00 % of First \$2 M 0.75 % of Next \$8 M 0.60 % Thereafter
Emerald Advisors All Cap (EMWO)	0.60	6,434,646	38,608	0.60 % of Assets
Ethos (EMWO)	0.47	2,044,862	9,611	0.47 % of Assets
CIM Small Cap (EMWO)	0.70	5,753,594	40,514	0.75 % of First \$5 M 0.40 % of Next \$10 M 0.25 % Thereafter
Cookson Peirce (EMWO)	0.50	776,520	3,883	0.50 % of Assets
International Equity				
SSgA ACWI ex US	0.07	38,754,304	27,128	0.07 % of Assets
Baillie Gifford Intl Equity	0.61	70,852,805	432,202	0.61 % of Assets
FIAM Select International Equity	0.32	33,092,364	106,849	0.34 % of First \$25 M 0.27 % of Next \$25 M 0.24 % of Next \$150 M 0.20 % Thereafter
Segall, Bryant & Hamill	0.63	36,422,984	228,903	0.75 % of First \$15 M 0.55 % of Next \$20 M 0.45 % of Next \$30 M 0.35 % Thereafter
Global Equity				
Columbus Master (ENMA)	0.70			

-

Columbus Macro (EMWO)

0.70

0.70 % of Assets

-



## Allegheny County Fee Analysis

As of September 30, 2021

	Estimated Annual Fee (%)	Market Value (\$)	Estimated Annual Fee (\$)	Fee Schedule
Core Fixed w Israel Bonds				
C S McKee	0.25	39,226,274	98,066	0.25 % of Assets
Federated Core Broad	0.29	35,286,105	100,715	0.30 % of First \$25 M 0.25 % of Next \$25 M 0.20 % Thereafter
CIM Investment Mgmt	0.25	23,870,703	59,677	0.25 % of Assets
StoneRidge Partners (EMWO)	0.30	5,506,700	16,520	0.30 % of Assets
Gridiron Capital Fixed Income (EMWO)	0.65	4,950,498	32,178	0.65 % of Assets
FNB (EMWO)	0.35	2,834,889	9,922	0.35 % of First \$5 M 0.30 % of Next \$5 M 0.25 % of Next \$10 M 0.20 % Thereafter
Israel Bonds	0.20	7,503,045	15,006	0.20 % of Assets
High Yield Fixed				
Oaktree High Yield	0.50	68,865,410	344,327	0.50 % of Assets
Federated High Yield	0.45	54,922,299	247,150	0.45 % of Assets
Sound Point	1.00	3,618,963	36,190	1.00 % of Assets
TIPS Fixed				
MCM TIPS	0.03	41,960,670	12,588	0.03 % of First \$50 M 0.02 % of Next \$50 M 0.01 % Thereafter
Real Estate				
Morgan Stanley Prime Property Fund	0.84	81,023,718	680,599	0.84 % of Assets
Oaktree Real Estate^	1.50	6,978,943	104,684	1.50 % of Assets
Washington Alliance (EMWO)	1.50	13,174,110	197,612	1.50 % of Assets
Washington Alliance II (EMWO)	1.50	1,181,352	17,720	1.50 % of Assets
Siguler Guff Distressed RE^	4.68	9,498,629	444,536	4.68 % of Assets
ERECT Fund II	1.35	10,497,897	141,722	1.35 % of Assets
Hedge Fund				
Gridiron Capital Multi-Asset (EMWO)	0.75	3,407,831	25,559	Performance Based 0.75 and 10.00
Liquid Deliau Deutfelia				
Liquid Policy Portfolio	0.00	40.070.040	20.002	
BlackRock Liquidity iShares Public Pension Fund*	0.08	49,078,819	39,263	0.08 % of Assets
Investments ex Private Equity		833,891,293	3,968,716	
and a set of the set o		000,001,200	0,000,110	

^ Due to limitations in reporting as a result of the variable and commitment based fee structure, AndCo calculated an approximation for this noted fee schedule. This figure demonstrates the "effective" basis point charge, computed based on the most recently available assessed quarterly fee + expenses, divided by the ending market value. The actual fee schedule can be found in Appendix A. \* Estimated fee based on average of underlying funds

83

### \*\*All fee Information provided by Asset Strategies

	Commitment Amount \$	2020 Mgmt Fees \$	
Total Private Equity w Life Settlement Composite	324,900,410.00	2,674,986.40	
Accolade Partners V	3,000,000.00	15,369.00	
Accolade Partners VI	3,000,000.00	-	
Adams Street 2003 U.S. Fund	13,733,000.00	-	
Adams Street 2008 Global	10,000,000.00	41,884.00	
Adams Street 2009 Global	5,000,000.00	26,463.00	
Auldbrass Spec Opps II	4,000,000.00	50,000.00	
Birchmere Ventures IV	525,000.00	3,800.00	
Blackrock Multi-Alternative Opps	3,000,000.00	14,252.70	
Blackstone Tac Op I	2,000,000.00	9,960.00	
Blackstone Tac Op II	3,000,000.00	21,306.00	
Blackstone Tac Op III	5,000,000.00	72,708.00	
CCA Black	7,500,000.00	166,543.00	
CCA Blue	3,800,000.00	51,149.00	
CCA Green	15,000,000.00	(186,372.00)	
CCA Longevity Fund VI LP	5,000,000.00	62,500.00	
Commonfund Venture Partners XII*	3,000,000.00	21,000.00	
Constitution Ironsides Direct Investment Fund IV	3,000,000.00	13,351.78	
Constitution Ironsides Opportunities Fund	4,000,000.00	-	
Constitution Ironsides Partnership Fund II	6,000,000.00	-	
Constitution Ironsides Partnership Fund III	8,000,000.00	32,794.03	
Crestline Opportunity Fund III	4,000,000.00	45,703.59	
Crestline Recovery II	3,000,000.00	2,455.00	
DCM Fund IV	3,000,000.00	19,853.00	
Draper Triangle II	10,000,000.00	-	
Draper Triangle III	13,500,000.00	209,629.00	
Emerald Advisors Fin Srv I	2,000,000.00	30,000.00	
Entrust Special Opportunities Fund III	3,000,000.00	16,835.00	
Entrust Special Opportunities Fund IV	3,000,000.00	30,670.00	
Farol Fund II	4,000,000.00	91,632.71	
Five Points III	3,000,000.00	30,000.00	
Glouston Private Equity Opportunities IV	3,000,000.00	16,410.59	
Goldman Sachs Private Equity Partners 2004	10,000,000.00	5,179.00	
Greenspring Early Stage I LP	4,000,000.00	9,868.00	
Greenspring Opportunities II-A	3,000,000.00	58,200.00	
Greenspring Opportunities III	3,000,000.00	54,106.00	
Greenspring Opportunities IV	3,000,000.00	54,723.00	
Greenspring Opportunities V	3,000,000.00	50,961.00	
Greenspring Secondaries I	1,000,000.00	7,500.00	
Greenspring Secondaries II	2,000,000.00	1,500.00	



## \*\*All fee Information provided by Asset Strategies

	Commitment Amount \$	2020 Mgmt Fees \$
iNetworks INOF II	-	89,932.00
iNetworks Opportunity Fund	11,000,000.00	178,200.00
iNetworks Opportunity Fund II	12,500,000.00	250,000.00
JMI Equity Fund IX-A	3,000,000.00	36,522.00
Mellon PAM Fund V	10,000,000.00	25,000.00
Mesirow Partners Fund IV	17,000,000.00	78,860.00
North Haven Capital Partners VI	3,000,000.00	48,574.00
North Haven Senior Loan Fund	4,000,000.00	30,551.00
Pharos Capital Partners III	3,000,000.00	37,136.00
PLSG Accelerator Fund	250,000.00	-
Valstone Partners IV	20,000,000.00	-
Valstone Partners V	20,000,000.00	300,000.00
Valstone Partners VI	20,000,000.00	300,000.00
Valstone Senior Living	13,092,410.00	148,277.00

\*Commonfund Ven XII mangement fees for 2020 estimate based on Committed Amount and fee percent outlined in fund documents



As of September 30, 2021

# Oaktree Real Estate Opportunities VI LP Fee Calculation

The annual Management Fee shall be an amount equal to the sum of the amounts determined with respect to each Limited Partner as follows: (*a*) prior to the end of the Investment Period, the product of the Management Fee Percentage attributable to such Limited Partner's Capital Commitment and the Capital Commitment of such Limited Partner and (*b*) from and after the day following the end of the Investment Period, the product of the Management Fee Percentage attributable to such Limited Partner's Capital Commitment and the lesser of (*i*) such Limited Partner's allocable portion of the Aggregate Contributed Capital and (*ii*) such Limited Partner's allocable portion of the cost basis of the Permitted Investments held by the Fund as of the end of the next-to-last month of the immediately preceding calendar quarter.

# Siguler Guff Distressed Real Estate Opportunities Fund II, LP Fee Calculation

A management fee shall be payable with respect to each Limited Partner by the Partnership to the Investment Manager (the "Management Fee") quarterly in arrears on the last day of each fiscal guarter. Up to and including the end of the Direct Investment Commitment Period or, if earlier, the date on which pursuant to Section 7.03(b) the Partners and Parallel Company Partners have voted to require the General Partner to cease making both Direct Investments and additional commitments to Funds (the "Investment Termination Date"), the Management Fee, for each Limited Partner, shall be payable at that Limited Partner's Blended Rate multiplied by the aggregate amount of such Limited Partner's Capital Commitment. From and after the end of the Direct Investment Commitment Period or, if earlier, the Investment Termination Date, the Management Fee, for each Limited Partner, shall be payable at that Limited Partner's Applicable Percentage (as hereinafter defined) per annum multiplied by the aggregate amount of such Limited Partner's Capital Commitment. The "Blended Rate" shall be a percentage of a Limited Partner's Capital Commitment calculated by combining (x) one percent (1%) per annum on the first \$10,000,000 of such Limited Partner's Capital Commitment, (y) eighty-five one hundredths of one percent (0.85%) per annum on the next \$40,000,000 of such Limited Partner's Capital Commitment and (z) five tenths of one percent (0.50%) per annum on such Limited Partner's remaining Capital Commitment. The "Applicable Percentage" shall represent an amount equal to eighty percent (80%) of the Blended Rate used to calculate the Management Fee for the preceding year. For example, in the first year following the termination of the Direct Investment Commitment Period or the Investment Termination Date, as the case may be, the Applicable Percentage with respect to Limited Partners with Capital Commitments less than or equal to \$10,000,000 (and therefore with Blended Rates of 1%) shall be 0.80% (80% of 1%), and for the following year, the Applicable Percentage shall be 0.64% (80% of 0.80%).



Active Return	- Arithmetic difference between the manager's performance and the designated benchmark return over a specified time period.
Alpha	- A measure of the difference between a portfolio's actual performance and its expected return based on its level of risk as determined by beta. It determines the portfolio's non-systemic return, or its historical performance not explained by movements of the market.
Beta	- A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of the portfolio's systematic risk.
Consistency	- The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. Higher consistency indicates the manager has contributed more to the product's performance.
Distributed to Paid In (DPI)	- The ratio of money distributed to Limited Partners by the fund, relative to contributions. It is calculated by dividing cumulative distributions by paid in capital. This multiple shows the investor how much money they got back. It is a good measure for evaluating a fund later in its life because there are more distributions to measure against.
Down Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of negative returns. A lower value indicates better product performance
Downside Risk	- A measure similar to standard deviation that utilizes only the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. A higher factor is indicative of a riskier product.
Excess Return	- Arithmetic difference between the manager's performance and the risk-free return over a specified time period.
Excess Risk	- A measure of the standard deviation of a portfolio's performance relative to the risk free return.
Information Ratio	- This calculates the value-added contribution of the manager and is derived by dividing the active rate of return of the portfolio by the tracking error. The higher the Information Ratio, the more the manager has added value to the portfolio.
Public Market Equivalent (PME)	- Designs a set of analyses used in the Private Equity Industry to evaluate the performance of a Private Equity Fund against a public benchmark or index.
R-Squared	- The percentage of a portfolio's performance that can be explained by the behavior of the appropriate benchmark. A high R-Squared means the portfolio's performance has historically moved in the same direction as the appropriate benchmark.
Return	- Compounded rate of return for the period.
Sharpe Ratio	- Represents the excess rate of return over the risk free return divided by the standard deviation of the excess return. The result is an absolute rate of return per unit of risk. A higher value demonstrates better historical risk-adjusted performance.
Standard Deviation	- A statistical measure of the range of a portfolio's performance. It represents the variability of returns around the average return over a specified time period.
Total Value to Paid In (TVPI)	- The ratio of the current value of remaining investments within a fund, plus the total value of all distributions to date, relative to the total amount of capital paid into the fund to date. It is a good measure of performance before the end of a fund's life
Tracking Error	- This is a measure of the standard deviation of a portfolio's returns in relation to the performance of its designated market benchmark.
Treynor Ratio	- Similar to Sharpe ratio but utilizes beta rather than excess risk as determined by standard deviation. It is calculated by taking the excess rate of return above the risk free rate divided by beta to derive the absolute rate of return per unit of risk. A higher value indicates a product has achieved better historical risk-adjusted performance.
Up Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of positive returns. A higher value indicates better product performance.



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AndCo uses time-weighted calculations which are founded on standards recommended by the CFA Institute. The calculations and values shown are based on information that is received from custodians. AndCo analyzes transactions as indicated on the custodian statements and reviews the custodial market values of the portfolio. As a result, this provides AndCo with a reasonable basis that the investment information presented is free from material misstatement. This methodology of evaluating and measuring performance provides AndCo with a practical foundation for our observations and recommendations. Nothing came to our attention that would cause AndCo to believe that the information presented is significantly misstated.

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